Keyboard Magazine

IAN McLAGAN | ROLAND SYSTEM-1 | PLAY LIKE BRUCE HORNSBY | KORG RK-100S | CUBAN PIANO LESSON | ALESIS VORTEX WIRELESS | MOOG THEREMINI

Keyboard

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STAGE SKILLS · STUDIO SMARTS

5
Ways To Play Like
BRUCE HORNSBY

CUBAN PIANO
SECRETS
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IAN McLAGAN
RETURN OF A
ROCK 'N' ROLL LEGEND

JAZZ
VOICINGS
For the Pop
Keyboardist

KEYTARS!
KORG BUILDS IN A SYNTH
ALESIS SERVES UP WIRELESS MIDI

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Exceeds Our Expectations

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DAVID ROSENTHAL
On Taking BILLY JOEL's Sounds Virtual

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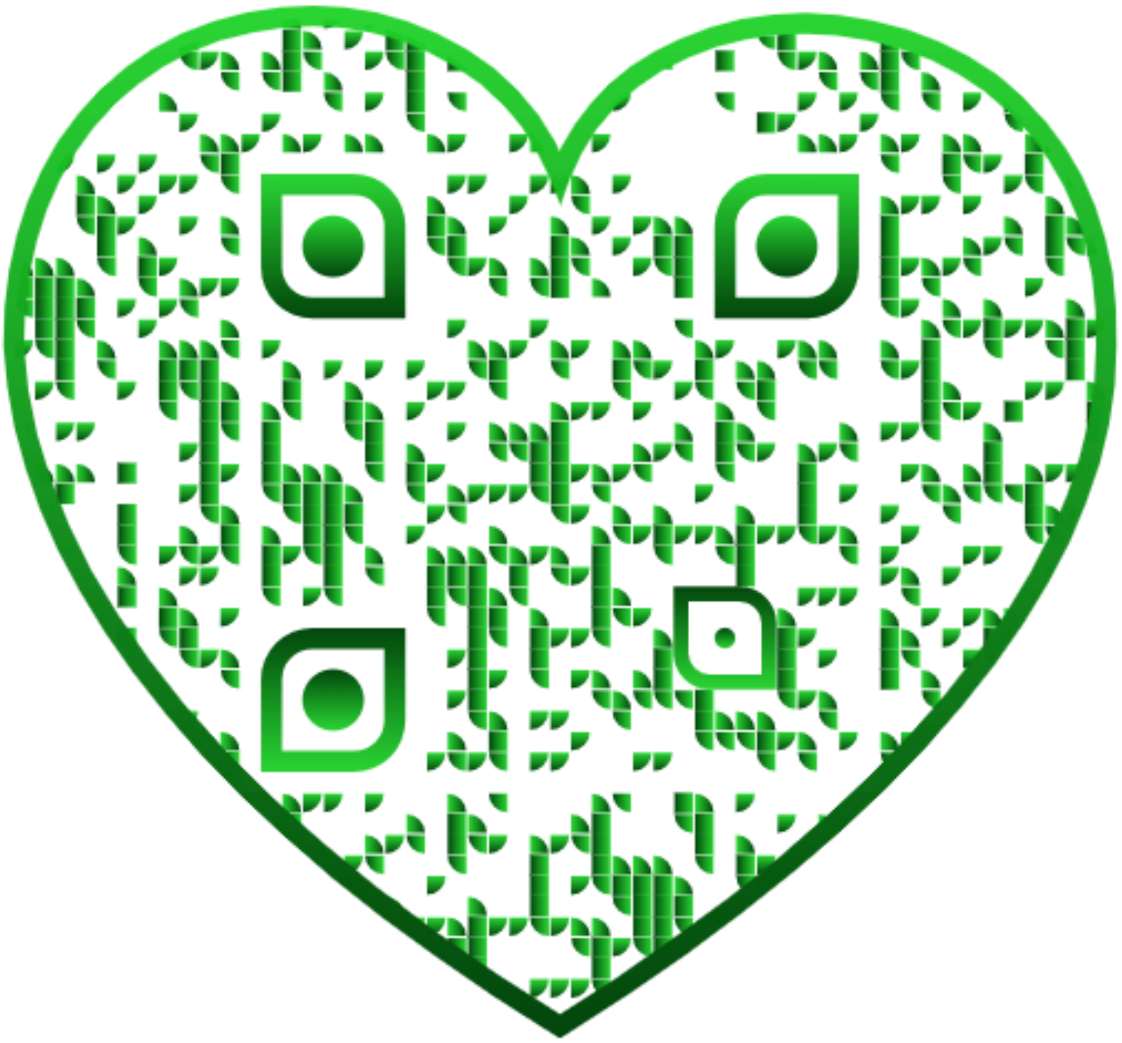
OCTOBER 2014



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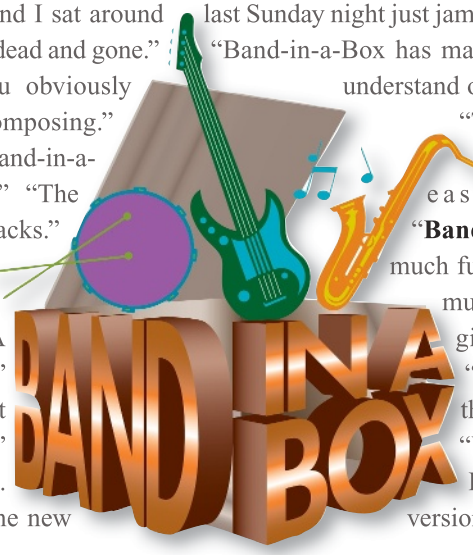

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CONTENTS

OCTOBER 2014

Keyboard
STAGE SKILLS · STUDIO SMARTS

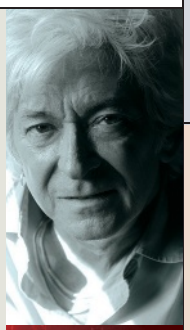
TALK

10 Voices, tips, and breaking news from the *Keyboard* community.

NEW GEAR

12 Our monthly wrap-up of the most interesting products from the keyboard, recording, and professional audio worlds.

HEAR



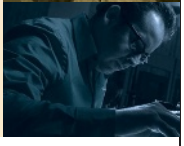
14 LEGENDS
Ian McLagan is both a consummate songwriter and keyboardist and a true member of rock 'n' roll royalty. Though best known for playing with the Rolling Stones and legendary British mod-rockers Small Faces, he'll tell you that just pays the bills so he can live his true passion of writing original songs. With his first solo album since 2008 now out, he tells us that and much more.

22 ROAD WARRIORS
Longtime Billy Joel sideman **David Rosenthal** may just be the most tech-savvy keyboardist working today. He recently completed the Herculean task of migrating Joel's massive live show from old-school keyboards and MIDI modules to modern gear. Here's how he did it.

26 TALENT SCOUT
Peter Dyer on playing synths with Aloe Blacc, Van Hunt, and Mariah Carey.

PLAY

30 POP
Five ways to play like **Bruce Hornsby**.



34 LATIN
Manuel Valera on modernizing **Cuban piano**.

34 JAZZ
Ben Stivers on **jazz concepts for pop keyboardists**.

COVER PHOTO BY THERESA DIMENNO

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KNOW

40 THE ART OF SYNTH SOLOING
Putting the minor and major **blues scales** to work.

42 BEYOND THE MANUAL
Must-know tips for **mixing virtual instruments**.

44 DANCE
How to get **the ultimate pad sound**.

REVIEW

46 SYNTHESIZER
Roland **Aira System-1**

54 KEYTAR SYNTH
Korg **RK-100S**

56 KEYTAR CONTROLLER
Alesis **Vortex Wireless**

58 THEREMIN
Moog Music **Theremini**

60 STUDIO MONITORS
PreSonus **Sceptre S6** and **Temblor T10**

62 APP
Akai Professional **iMPC Pro**

64 ROTARY SPEAKER
Leslie **Studio Model 12**

CODA

66 Six things that multiple Grammy-winning composer and conductor **Vince Mendoza** has learned about **jazz composition**.

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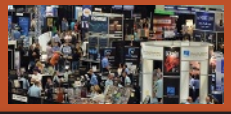

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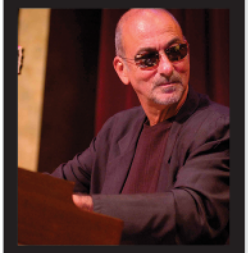
(Keyboardist & programmer - U2)



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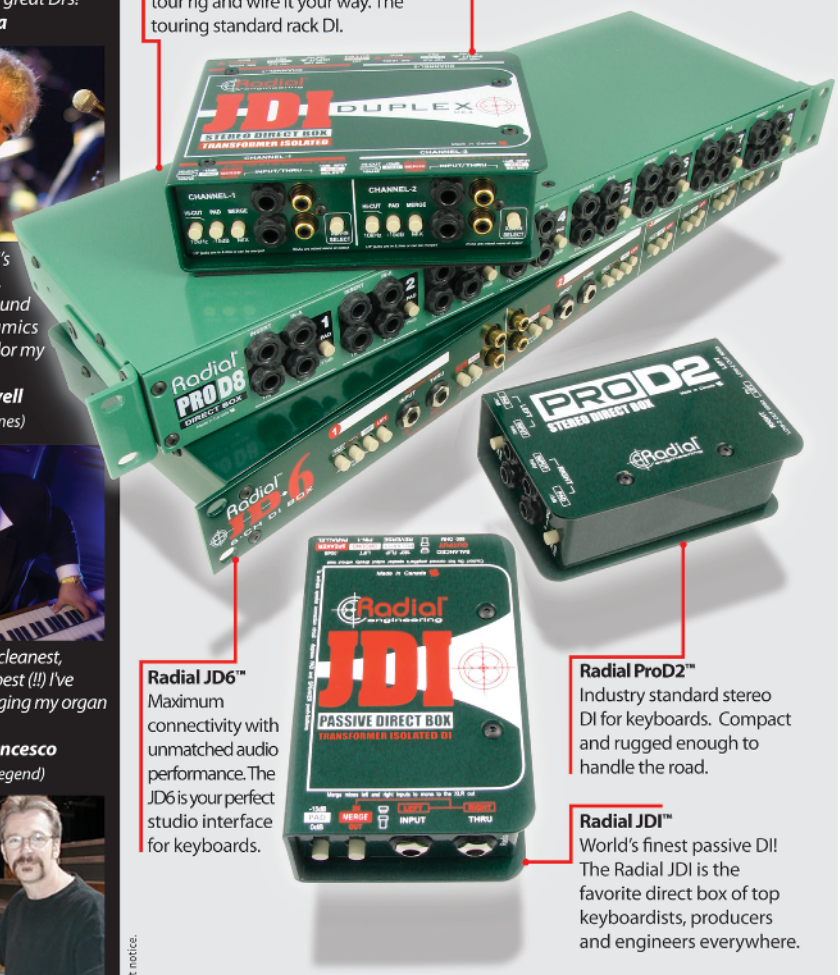

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EDITORIAL DIRECTOR: Michael Molenda mmolenda@nbmedia.com
EDITOR IN CHIEF: Stephen Fortner sfortner@nbmedia.com
MANAGING EDITOR: Barbara Schultz bschultz@nbmedia.com
EDITORS AT LARGE: Francis Preve, Jon Regen
SENIOR CORRESPONDENTS: Jim Aikin, Craig Anderton, David Battino, Tom Brislin, Michael Gallant, Robbie Gennet, Peter Kirn, Jerry Kovarsky, John Krogh, Richard Leiter, Tony Orant, Mitchell Sigman, Rob Shrock
ART DIRECTOR: Damien Castaneda dcastaneda@nbmedia.com
MUSIC COPYIST: Matt Beck
PRODUCTION MANAGER: Amy Santana
PUBLISHER: Joe Perry jperry@nbmedia.com, 212.378.0464
ADVERTISING DIRECTOR, EASTERN REGION, MIDWEST & EUROPE: Jeff Donnenwerth jdonnenwerth@nbmedia.com, 770.643.1425
ADVERTISING DIRECTOR, WESTERN REGION & ASIA: Mari Deetz mdeetz@nbmedia.com, 650.238.0344
ADVERTISING SALES, EASTERN ACCOUNTS: Anna Blumenthal ablumenthal@nbmedia.com, 646.723.5404
SPECIALTY SALES ADVERTISING, WEST: Michelle Eigan meigan@nbmedia.com, 650.238.0325
SPECIALTY SALES ADVERTISING, EAST: Jon Brudner jbrudner@nbmedia.com, 917.281.4721

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Editor's Note

Reading the draft of the review of the Roland System-1 that appears in this issue got me to thinking about a question I constantly hear from synth enthusiasts: "Does it sound *analog*?" The analog renaissance is certainly a great thing, but a side effect is that most of an entire generation now thinks of "synths" as making a very specific set of sounds. This tends to involve saw, triangle, or pulse waves (perhaps slightly detuned against each other) and a resonant filter, most likely swept. "You know, that retro, funky, spacey sound, like . . . a synthesizer!" goes the circular definition.

Let's not forget that the promise of synthesizers was to help musicians make *any* sound. Some wanted emulations of existing instruments; others wanted as-yet-unimagined sounds and to explore the frontiers of sound-design-as-composition. Let's also not forget that at first, anything you could perch atop a Rhodes or B-3 (not to mention afford) was most likely analog and subtractive—and *couldn't* accurately create many sounds that musicians wanted. Until the Yamaha DX7 rewrote the price-performance rules, "digital" equated to exotic, premium, and highly desirable: think PPG and Fairlight.

The product pendulum in the '80s and early '90s swung so far towards affordable digital that we temporarily lost a lot of things that were fun and inspiring about synths, like having lots of knobs. Today's analog obsession can partly be seen as the antithesis of all that. With analog/digital hybrids like the Prophet 12 and Modulus 002 poised to be the next big thing, let's hope for a Hegelian synthesis (pun intended) of instruments that combine everything good about analog *and* digital. But also, keep practicing your piano!

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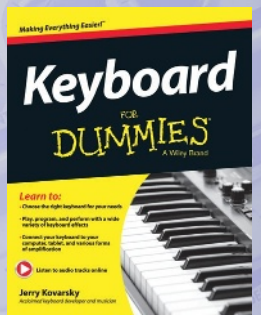
Stephen Fortner
Editor

Key Secrets Better Grooves, 50% Off

Here's a cool tip from *Keyboard* columnist Jerry Kovarsky's excellent *Keyboard for Dummies* book: Set a fast groove to half its tempo to give a new feel to a ballad or a mellow pop song. You can even paste a half-time groove into the middle of a song to add drama. This is derived from how real-world drummers typically maintain the pulse by keeping the hi-hat at full speed while dropping the kick and snare to half. Doubling the tempo can sound cool too, so give it a try when auditioning loops. Many drum plug-ins, such as Spectrasonics Stylus RMX, let you quickly double or halve the groove tempo against the host. David Battino



THE Keyboard POLL

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Polls rotate every two weeks, and can be found at the bottom of our homepage.

SCENE AND HEARD

Synth pop icons **Erasure** hit the road this fall in support of their new album *The Violet Flame* (Mute Records), scheduled for release on September 23. Following a pair of U.K. dates at CarFest in August, the duo of **Vince Clarke** and **Andy Bell** will head to Miami in September, and continue a sweep through U.S. cities through the end of 2014. The tour includes a stop to party at The Palms in Vegas for Halloween, and two New Year's Eve shows at Terminal 5 in New York City. For more info and tour dates, visit keyboardmag.com/october2014.

+ 30 YEARS AGO TODAY

In October 1984, *Keyboard* promised to reveal the "Secrets of Improvisation," and delivered with in-depth lessons on improvising in any genre from our experts, and pro advice from jazz pianist **Denny Zeitlin** and prog rock virtuoso **Eddie Jobson**. Our "ProFile" on new wave rocker **Bonnie Hayes** (she of the Wild Combo) told about the artist's influences and her unique approach to performance: a Yamaha DX7 for composing at home, and a CP-70 electric grand on the road. Assistant editor Jim Aikin reviewed new jazz LPs from **Kirk Lightsey** with **Harold Danko**, **Junior Mance**, **John Hicks** and more, and the inside cover featured a two-page ad from Korg, including the **RK-100** MIDI keytar controller—the precursor to the RK-100S synthesizer that's reviewed on page 54 of this issue. Barbara Schultz

My First Wurlitzer Electric Piano, Rachael Sage

Rachael Sage's first taste of electromechanical goodness came out of an unlikely gig: playing piano for her dorm's happy hour during her undergraduate years at Stanford University. "The fellow who delivered the kegs happened to be John Lee Hooker's organ player," says the singer and songwriter, laughing. "We became friends and I ended up interviewing Johnny for the radio station I worked at. I also ended up hanging at Johnny's house a lot, going to barbecues, parties, and what not." One day, Sage discovered an enthusiastic message on her answering machine from Hooker, urging her to come over and break in his brand new piano. "It was actually a Wurlitzer," she describes. "I had grown up on Roland and Yamaha synthesizers, so it was foreign to me. But I started playing my pop and folk songs and immediately fell in love with the timbre and feel of the instrument." Sage describes the feeling as simply wanting to hang out with the keyboard and get to know it better. "Playing it was a huge turning point for me and greatly influenced both the music itself, and the production aesthetic, that I would develop in my own recordings," she says. To hear Sage's current electric piano work, played on her very own 1966 Wurlitzer, check out her latest album, *Blue Roses*, and visit her online at rachaelsage.com. | Michael Gallant

NEW GEAR

BY STEPHEN FORTNER

MODULUS 002

WHAT High-end analog/digital hybrid synth with 12 voices of polyphony, full multitimbral capability (each voice if desired), 12-track step sequencer (which can sequence parameters as well as notes), analog transistor ladder filter, cloud-based patch storage, and much more. **WHY** This polysynth stratosphere is occupied only by the likes of the Prophet 12 and Solaris, so there's room for more flavors. Look for our full review soon. **$5,200 (est.) | modulus.me**

PROPELLERHEAD REASON 8

WHAT Radical rethinking of the user interface heads up the latest "left of the decimal" update to the popular all-in-one music production platform. **WHY** Reason has accumulated many instruments, features (including audio recording), and third-party rack extensions over the past few versions. This update organizes them so as to speed your workflow. **$449 | $129 upgrade | free if you bought Reason 7 after July 1, 2014 | propellerheads.se**

DAVE SMITH INSTRUMENTS DSM01

WHAT The first Eurorack module from Dave Smith: a Curtis lowpass filter with switchable two- or four-pole curves. **WHY** You want to impart that signature Prophet-5 filter sound to the gear that makes up your modular synth obsession. **$199 | davesmithinstruments.com**

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WHAT The latest generation of the Boston brainiacs' state-of-the-art audio repair and restoration software. As before, it gives you detailed visual feedback on the sonic spectrum, including the undesired anomalies. **WHY** If your music career doesn't work out, you could literally fall back on doing forensic audio for the NSA. **$TBA | free upgrade if RX3 purchased after August 7, 2014 | izotope.com**

MOTU 1248, 8M, and 16A

WHAT High-end, networkable Thunderbolt/USB2 audio interfaces. The 1248 has the most diverse I/O, with four mic preamps, two guitar inputs, and 8x12 balanced analog I/O; the 8M provides eight mic/instrument combo preamps plus eight balanced analog outs; the 16A is the synth studio monster with 16 channels each of balanced line-level I/O. All provide two banks of lightpipe, coaxial S/PDIF, and Ethernet for adding multiple units while only using one connection to your computer. **WHY** They have exceptional audio quality and low latency, and take both home and project studios into the Thunderbolt era. **$1,495 street each | motu.com**

CASIO LK-260

WHAT Light-up personal auto-accompaniment keyboard with lesson features and, most importantly, the ability to sample up to two seconds of audio through a built-in mic and use it as a sound effect or play it back from the keyboard. **WHY** It'd be a great first keyboard without the sampling, but will also warm the heart of anyone who remembers getting kicked out of Radio Shack for sampling naughty words into an SK-1. **$259.99 | casiomusicgear.com**

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WHAT Similarly to active studio monitors, these headphones have the amplifiers built-in. Each side's transducer is matched with its amp, and if needed, they can take a line-level signal. They're also highly adjustable for a comfortable fit. **WHY** You'll hear the same accurate sound regardless of what you plug these into. That, and the prototype we tried looked, sounded, and felt fantastic. It's hard to get us excited about headphones, but we are now.
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IAN McLAGAN

LOVE, LOSS, & VINTAGE KEYS ON *UNITED STATES*

"Making my own albums is *everything* to me," legendary British keyboardist and songwriter **Ian McLagan** says from behind a Steinway concert grand. "Like the title of the first song on my new album, *United States*, says, it's really 'All I Wanna Do.'"

★ ★ ★ ★ ★ ★ ★ ★

At 69 years young, McLagan is as captivated today by a sticky lyric and well-oiled Hammond organ as he was back in the 1960s and '70s when he came to fame playing, singing, and writing with bands like Small Faces (later simply Faces) and the Rolling Stones. But unlike legions of other well-known keyboard sidemen, McLagan has also had a successful solo career since almost his very early days onstage.

United States finds the veteran rocker backed by his longtime Austin, Texas-based "Bump Band" of "Scrappy" Jud Newcomb on guitar, Jon Notarthomas on bass and Conrad Choucroun on drums. In ten blues-drenched originals, McLagan waxes poetic while coaxing killer keyboard grooves. Who knew heartache could sound so good?

On the day of his new album's release, McLagan joined *Keyboard* at New York's Steinway Hall to talk about his nearly half-century searching for the perfect song.

BY JON REGEN

You've had a long and distinguished career as both a sideman and solo artist. Was fronting your own band always a goal?

Well here's what happened. I was writing songs back in the Small Faces days, and I was trying to get Ronnie [Lane] and Steve [Marriott] interested. I wanted to break into the Marriott/Lane songwriting partnership, but I just couldn't do it at that time. One day, I played Ronnie an idea for a song that came out of an expression he taught me. It turns out, when he was a small boy, his father used to take him up to bed and say, "Let's go up the wooden hills to Bedfordshire," meaning, "Let's go up the stairs to bed." I thought it was a great expression, so I wrote a song about it and presented it to Ronnie, thinking the Small Faces would cover it. But he turned to me and said, "Why don't *you* sing it?" So I replied, "Okay." Which was great! We recorded the song, and Steve was very encouraging too, so I came up with another tune as well. I actually sang two tunes on the Small Faces albums.

A little later on, I actually *did* break into their songwriting partnership. We all took a cruise vacation up the Thames, and I ended up having the biggest boat out of anyone. So when we would stop for lunch, everyone would come on my boat and we'd all play guitars. So at that point, they couldn't deny me because I was writing with them! Years later, after the Faces, I got back with Steve, Ronnie, and Kenny [Jones], and we decided we'd make an album. I started writing with Steve, because he and Ronnie had fallen out with each other. When we went into the studio to record, Ronnie quit. He didn't want to work with Steve anymore. But for two albums, Steve and I were writing most of the material for the band. That gave me a lot of confidence.

Had you ever sung before Small Faces?

Well, only on the B side of [McLagan's first band] the Muleskinners' only release, but it wasn't very good. I was trying to sing like a bluesman. I was pretty hopeless!

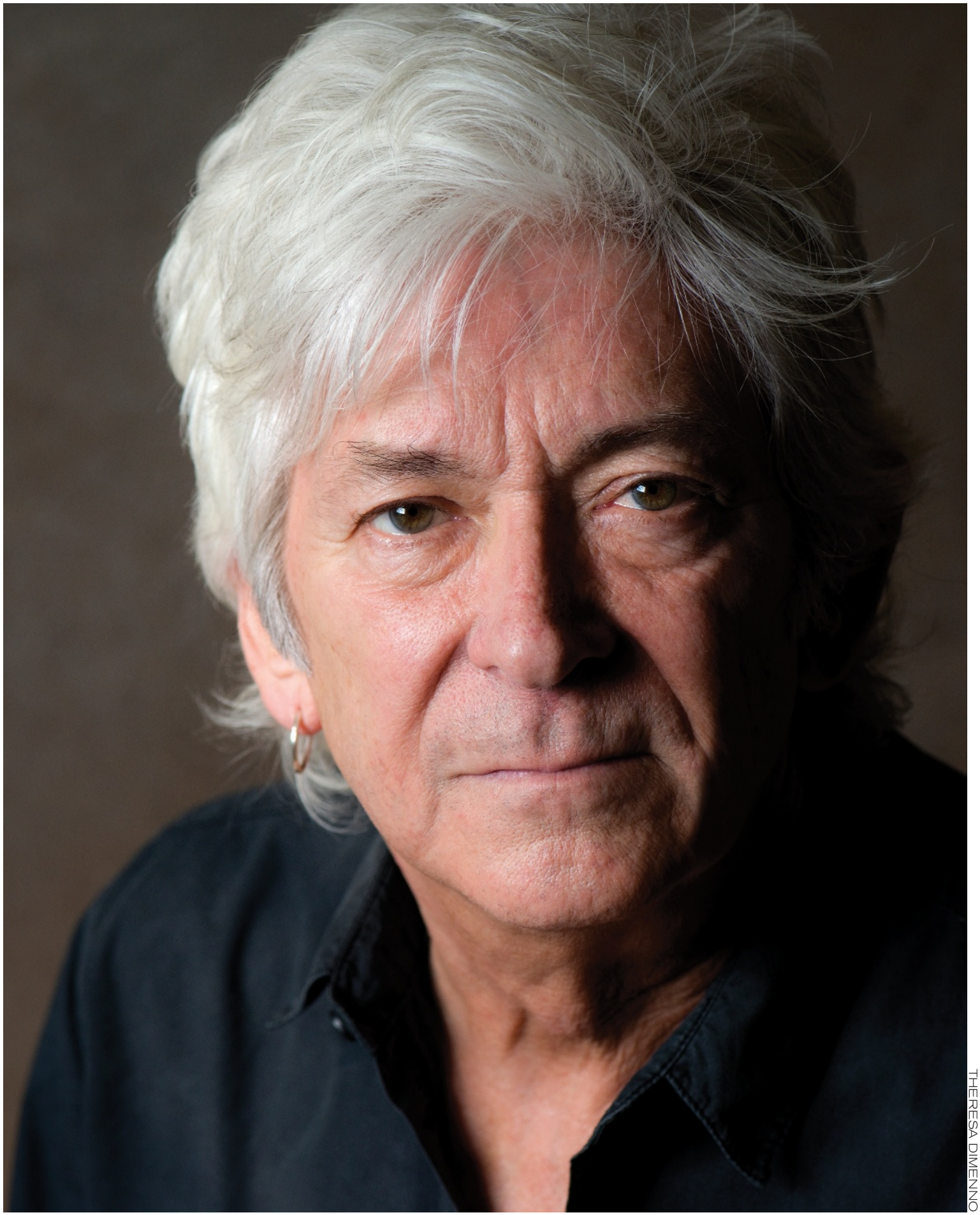
Later when the Faces formed, we had Rod Stewart, Ronnie Lane, and Ronnie Wood, and all of them were singing. Rod would write so fast that a song would get recorded in a single day. One time, though, I was sitting at the piano, playing a sort of Memphis-ish piano riff, and Rod started singing the lyrics, "Oh Cindy, ain't you noticed . . ." That became the song "Cindy Incidentally" from the Faces album *Ooh La La*. Rod, Ronnie Wood, and myself wrote that song from my original idea. But I never sang because there were already three singers in the band.

It's interesting, though, because both you and Rod [Stewart] have very similar singing voices.

People often say that, but I don't try to sing like him at all. I have the voice of a 25-year smoker. I stopped smoking 31 years ago. But I think Rod I just listened to the same musicians when we were coming up. Rod's more into Sam Cooke though, and I'm more into Otis Redding.

What happened after Small Faces and Faces?

I got asked to do a Rolling Stones tour in 1978, playing organ, Wurlitzer, and the occasional piano



THERESA DIMENNO

part, because Ian Stewart was playing piano in the band at that time. I ended up collecting a lot of money from that tour and I started having trouble with the taxman in England. My new manager, who was also Ronnie Wood's, said I had to move to Los Angeles for business purposes. I said, "Fine, I want to get out of London anyway!" My lawyer told me that I could get a green card if I married my then girlfriend Kim, who had previously been married to [Who drummer] Keith Moon. I proposed to her, and we were together 33 years. She was the love of my life. After I got to Los Angeles, my manager got me a deal with Mercury Records. I wrote everything on that first solo album and the next one. I wanted to write. I wasn't thinking of genres or styles; I had the bug and *nothing* was going to get in my way.

Does making your own albums fulfill something in you that playing or touring with other artists doesn't?

Totally. If I could get away from doing sessions for other people, I would. Unless it's for an artist like Lucinda Williams, whose album I just played on earlier this year. She's unbelievable and that was a lot of fun. But the sessions and royalties give me money that allows me to make the records and go on tour with my band.

Did you write songs specifically for the album, or was it a collection of tunes you assembled over the years?

I'm constantly writing. I was driving past a Mexican restaurant last week and I said to my friend in the car, "I know that restaurant—I wrote a song in there!" But I'm always writing. In fact, I just did 13 interviews in an hour for Premiere Radio. It's really odd—you'll be talking to a DJ in Pittsburgh for ten minutes, and then you're talking to someone in Terre Haute, Indiana, or Seattle, Washington. So I did 13 of these one after another, and something I said stood out to me and I thought, "I've got to write that down!" I ended up getting five or six lines for a song out of it, while I was talking live on the radio! Plus, I now have the facility with the iPhone Voice Memos app to put a vocal, guitar, or piano idea down, and I can put lyrics in the Notes app. But the second song on the album, "Pure Gold," I've had for about 23 years.

That one's got a great reggae-ish feel to it. Have you listened to a lot of reggae?

To me it's really more African. I wrote it on guitar, and I actually played one of the guitar parts on the album. I tried to record it with different bands over the years, but nobody ever "got it," until my current band with Conrad, Scrappy, and John. That said, I did listen to a lot of reggae. When I did the Stones tour in 1978, they were going to get Peter Tosh's keyboard player Bernard "Touter" Harvey because the whole band loves reggae, especially Keith Richards. But in the end, they realized it would have been harder to teach Bernard rock 'n' roll, than it was to teach me a little reggae feel—but then we didn't play any reggae at all.

You've said that the new album is about relationships. Can you elaborate on that?

The cover of the album is a photo of a motel I took from my car on an iPhone, and there's an arrow in the picture that is almost trying to lead you inside. My last album was all about grief and loss. [*That album,* Never Say Never*, was released in 2008 and followed the death of McLagan's wife, Kim, in a car accident.*] This album is still about loss, but it's really about relationships—from failed ones to ongoing, hopeful ones. That's why it's called *United States*.

The first song on the album, "All I Wanna Do," has lots of gritty Wurlitzer on it. Is that a real Wurly or an emulation?

It's the Nord Stage on this track. I have an old, wooden flat-top [100 series] Wurlitzer like Ray Charles used, but it's the home version. I've only seen three of these in my entire life, so I just had to buy it. But there's a broken *E* key on it, and we had no time to fix it before we cut that song. So we used the Nord. But I love the Wurlitzer. One of the highlights of my career was playing it on tour with the Rolling Stones, and on the track "Miss You" that I recorded with them on their album *Some Girls*.

That song also has a ton of churchy organ. How did you first get introduced to the Hammond B-3?

Booker T. Jones. I heard "Green Onions" and I just had to find out what that sound was and how to make it. Booker T.'s my total god when it comes to the organ. He's a beautiful player and a lovely man, too.

Did you go out and buy a Hammond organ after you heard Booker T. play it?

I saw an ad in the back pages of *Melody Maker* magazine that said, "Hammond Organ In Your Own Home, Two Weeks Free Approval, No Charge." I thought, "This has to be a con." So I phoned up and asked, "Is this true?" And the man at the other end said, "Yes sir, and we can deliver it tomorrow." I said, "Okay!" I hadn't even told my parents. I was still living at home with them at the time and they were still at work. So they delivered it and said, "The one thing is, you can't move it." That was fine—I couldn't lift it anyway!

Do you remember what model Hammond organ it was?

It was an L-102. They brought it in and explained the particulars to my dad, who then explained it to my mum. And two weeks later, he signed the papers for it. Then I put "Green Onions" on the record player and figured it out.

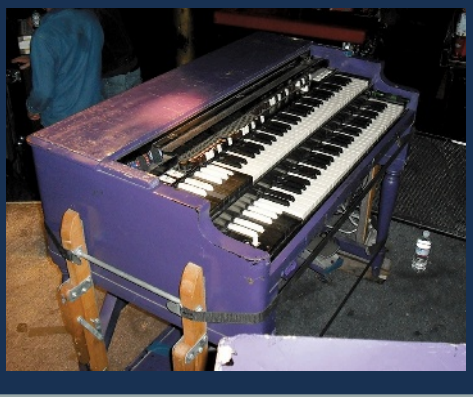
Are you touring with a real B-3 or a modern clone these days?

★ MCLAGAN'S KEYBOARD COLLECTION ★

While Ian McLagan's childhood Hammond L-102 now resides at ex-Small Faces/Faces and Who drummer Kenny Jones' house in England, McLagan has assembled an impressive array of keyboards in his Austin, Texas, studio, where he records to Pro Tools.

"My main 'road dog' organ is painted purple and I call her Betsy," McLagan says. "She's a 1966 Hammond B-3 that has been with me since 1969. I also have a sweet-sounding 1946 Hammond BCV organ with a Leslie speaker, as well as a Hammond B-2 that's in storage while I try to find a Leslie for it."

McLagan also uses a Hohner Pianet/Clavinet Duo, an 1897 Bechstein grand piano, a 100 Series "flat top" Wurlitzer, a Nord Stage, and a Yamaha CP4 digital stage piano. One keyboard you won't find in his collection, though, is a Fender Rhodes.



"I don't like the Rhodes," McLagan says. "I've never used them. I played a good one in the studio recently and it was actually the first time that I was going to record with one. And then someone said, "Well, maybe use the Wurlitzer instead." And I thought, "Thank God for that!"

AT GUITAR CENTER

GAVIN DEGRAW

SPARKING KEYS TO CREATIVITY

Though Grammy-nominated and multi-platinum-selling Gavin DeGraw was raised in a prison town two hours north of New York City, and had seen harsh reality from an early age, the hippie vibe of nearby Woodstock lingered in the air, offering a feeling of limitless possibility and freedom.

"Music was definitely part of our family culture. My granddad played music. My granddad's brothers played music. They were basically like a bunch of farm kids who played music," DeGraw says. "My dad plays guitar and he's a great singer. He wasn't a piano player, but he could figure it out and say, 'Here, check this out.'"

DeGraw says his exposure to live music at an early age helped him build a passion for learning to play. His brother already had a three-year jump on playing guitar, so DeGraw gravitated toward the piano. "My family was unusually supportive about playing music because they just loved music. So when I told them I wanted to play rock and roll, they were like, 'Cool, yeah, go do that. Good idea.' It was weird how there was no way to be rebellious about it."

The songwriting on DeGraw's latest release, *Make a Move*, reflects that freedom, incorporating aspects of several different popular music genres into one album, from stripped-down Americana and analog synthesizer sounds to hi-tech electronic dance sounds.

Read the entire interview and see the keys to Gavin's sounds at guitarcenter.com.

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It's a real Hammond B-3. It's the organ that's on the song "All I Wanna Do" and it's really a beast. I would never take a real Wurlitzer on the road; it's just too much work, and they're heavy. I was using the Nord Stage for other keyboard sounds besides organ, but now I'm using the Yamaha CP4 because the Nord action is a little light for me for piano.

You seem to favor a thick Hammond sound on record . . .

Well, when I'm playing it with the band, it's *got* to be that way. But I actually love the sweet sounds that you can get out of an organ. The organ on first song from *United States* "All I Wanna Do" comes from "Betsy," my old road dog of a B-3. The organ sound on "Pure Gold," though, comes from a 1946 Hammond BCV organ. It's a thing of beauty. The Leslie for that organ only has two speeds: stop and fast.

On that topic, do you have any favorite Hammond drawbar settings?

I like a lot of the softer sounds—oftentimes just the first and third drawbars out, with some of the top ones whispering a bit, as well. Plus, my Leslie has both a hand switch and a foot switch. So I can get different sounds going.

The song "Don't Say Nothing" has a bit of a Leon Russell feel with regards to the piano part.

That's a great compliment. It wasn't intentional. I think that song was inspired by a late-night jam I had with Billy Preston years ago in Los Angeles. He was playing piano and I was playing organ. He yelled out to me, "Switch over!" I said to him, "I've always had the idea to write a song with an ascending figure based on *A*, *B*, *C*, *D*, *E*, *F*, and *G*." And so we wrote one. "Don't Say Nothing" is just the opposite, descending chromatically with every other note accented.

The sentiment in the song is great advice for life.

Isn't it? I love it; it just came to me. It basically means, "If you ain't got nothing good to say, shut the f*** up!"

That song has an almost classical feel to it. Did you study piano formally at all?

I had two or three lessons. My mum wanted me to do it. I just didn't like it. I *still* don't know how to play the scales!

"I'm Your Baby Now" has a barking, bluesy right-hand piano line with octaves in the bass. Who were some piano players that influenced you when you were coming up?

Otis Spann, who played with Muddy Waters, and Johnnie Johnson, who played with Chuck Berry. Those two were the main guys for me. If anyone wants to start playing blues piano, they could listen to those two and not miss *anything*! I saw Otis play with Muddy in London around 1963 or '64. Forty-odd years later I was on that same stage, and I positioned my piano right where his was. Then I gave myself a little wink. [*Laughs*.]

"I'm Your Baby Now" also has a vibey, John Lennon-esque, slapback echo on your vocal. How did you get that sound?

That's actually the combination of the original live vocal together with another vocal I recorded after it. I didn't want to change it, so it's a double vocal, where I'm not exactly singing the same phrases. Glyn Johns wasn't so sure about it, but I said, "No, it's got to be that!"

That song has a mantra, like you're *willing* somebody to fall in love with you by repeating the chorus over and over again.

That's *exactly* what I was doing in that song. I actually wrote it on guitar, but I couldn't figure out how to get the timing right. So I recorded it to a click and realized I was playing it three dif-

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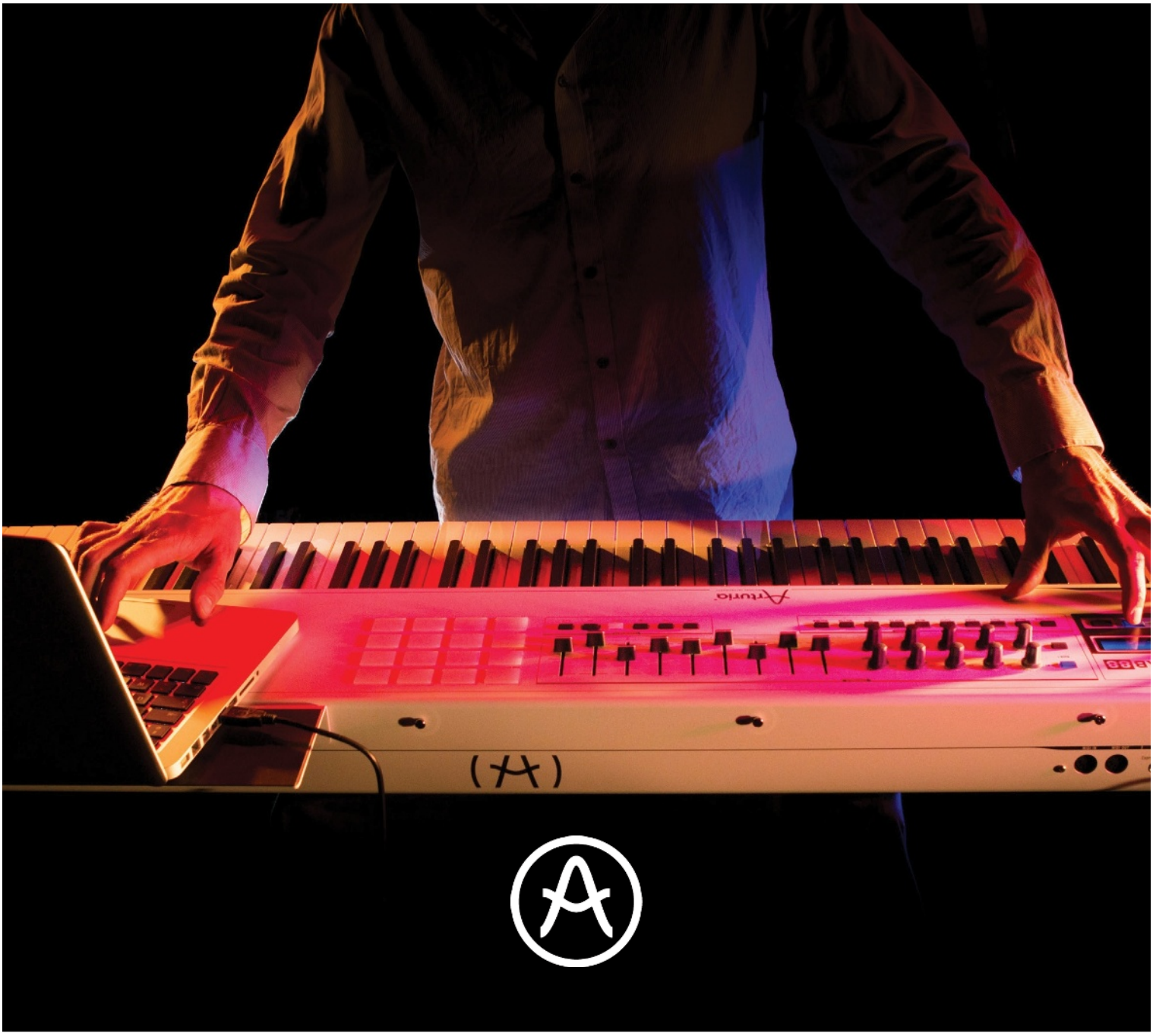

PLAY

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ferent ways. I was playing in 15 on the guitar, in 13 on the piano, and in 16 on the drums. So I thought, "Well, it feels natural to me on piano in 13. So that'll be the song!"

On "Love Letter," your Hammond would be recognizably you even without the vocal . . .

That song uses the Hammond BCV again. I just love how sweet that organ sounds. It's fun—I had worked on the intro, the solo, and the outro for a couple of days. I kept going back to it, and I was working so hard to get the song right, I actually bruised the bones of my hands in two places and wasn't even aware of it. Only then did I realize that the sides of the BCV's keys are sharper than those on a piano. I also have a B-2 that's in my storage facility. If I won the lottery or had a hit record, I know what I'd spend my money on: pianos, organs, mics, and reel-to-reel 24-track tape machines!

Your new album was mixed by Glyn Johns, who also just produced Benmont Tench's solo album. What can you say about Glyn's work?

He's direct; he never second-guesses himself, and he's absolutely confident. And he *knows* sound. He has great ears. When he mixed my last album, it took three days for him to mix the entire album. I treasured that time with him in London. But it was loud as f***! I haven't heard volume like that in years!

You've called your song "Shalalala" a thank-you to the audience. How did that one come about?

A friend of mine who teaches at Austin Community College invited me to perform in front of his students. The night before the concert, I thought about how it was going to go, and the words, "It's a big thrill to be here today" just came out. So the next day, I told them, "I wrote a song for you!" All I had at that point was a verse, but they liked it. So I went home and worked on it, and the next year when I returned to play another show, I played them the finished song. So it's true. I *am* thankful to still be doing this.

What advice do you have for the next generation of keyboardists?

Listen to the greats. Listen to Otis Spann, Booker T., Billy Preston, and Johnnie Johnson. Listen to Memphis Slim, and how Louis Armstrong and Little Walter sing. And as a keyboardist in a band, always be aware of what the other musicians are playing and don't get in the way of it. Benmont Tench, Tom Petty's keyboard player, is the classic example of that. There are times you don't know exactly what he's playing, but you know it's good because, if you take it away, the energy dies. I'm also not big on solos; I do take them, but I'm happy when they're over! You've got to earn them. ♪

SOUNDCLOUD

Ian McLagan performs "I'm Your Baby Now" exclusively for *Keyboard* readers.

keyboardmag.com/october2014

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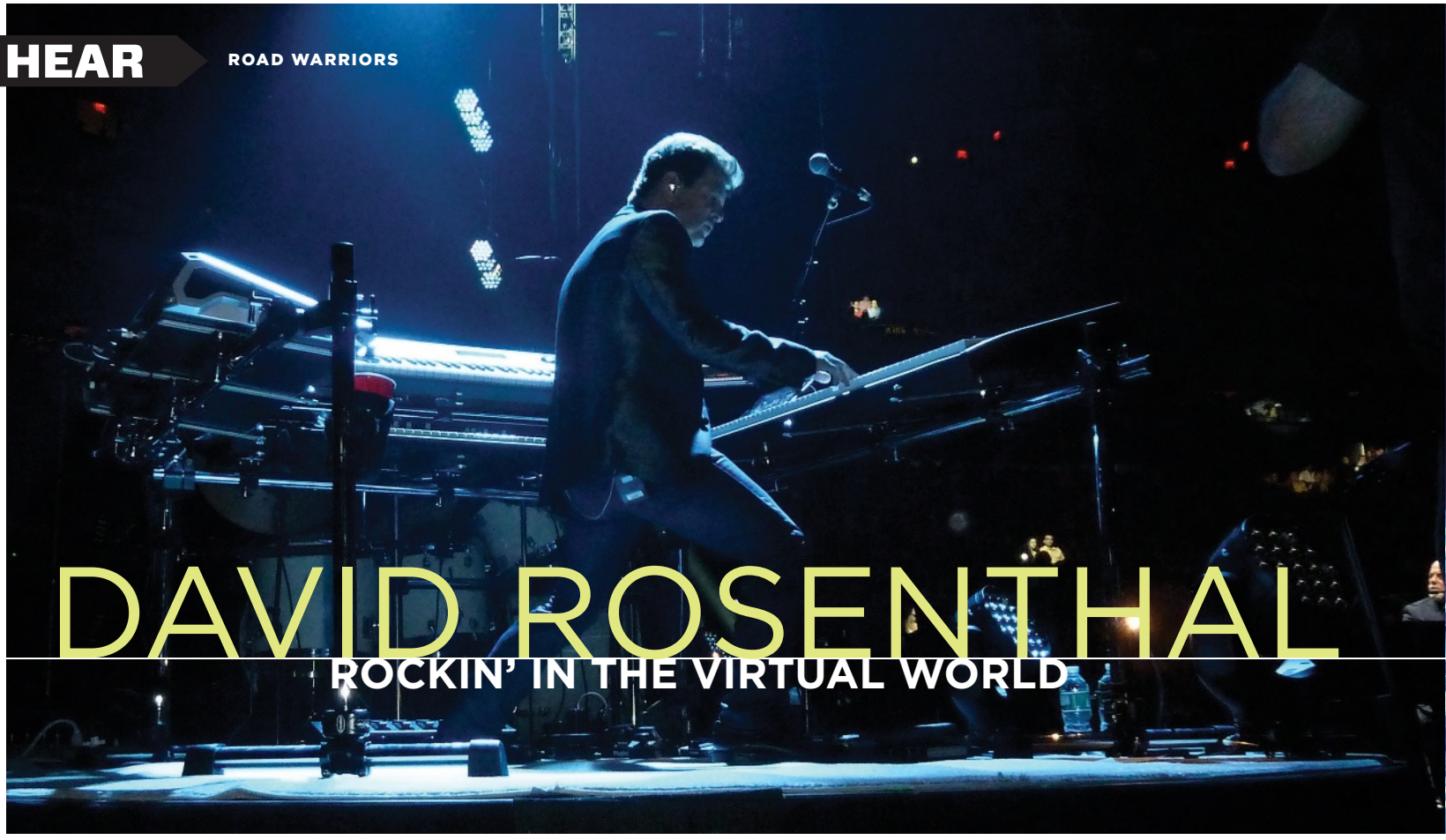


DAVID ROSENTHAL

ROCKIN' IN THE VIRTUAL WORLD

DAVID ROSENTHAL IS REVERED ACROSS THE MUSIC BUSINESS AS A CONSUMMATE Berklee-trained keyboardist with the gift of perfect pitch. To be in the middle of Rosenthal's touring rig for Billy Joel is to behold one of the most organized and efficiently routed systems one could imagine. Add his prowess in synth programming, orchestration, production, and musical direction, and you have an indispensible powerhouse.

Rosenthal's early career was spent with heavier acts such as Yngwie Malmsteen, Ritchie Blackmore's Rainbow, and Steve Vai, before he moved on to stints with Robert Palmer, Cyndi Lauper, and Enrique Iglesias, followed by his work on Broadway and with his own bands Red Dawn and Happy the Man. Rosenthal helped Bruce Springsteen's band update their keyboard rigs, acted as musical director for the PBS special *The Power of Music*, and for the Tony Award-winning musical *Movin' Out*, he did everything from synth programming to teaching the pianists how to play like Billy Joel. *Keyboard* visited Rosenthal to find out how the latest incarnation of his rig has evolved from his long-loved synths and sound modules to the largely virtual domain of Apple MainStage and the Muse Research Receptor 2.

When we first met you in 1994, you were known for using the Yamaha TX-816, which amounted to eight DX7s in a rack. Do you still use those patches, and if so, what do you play them on?

All my patches are there in [Native Instruments] FM8. I converted them through sys-ex. They're the exact same patches. I did it on FM7 and then I upgraded to FM8, but the patches load right in. I used Behringer Multigates to silence the TX-816 modules because they're noisy. The tiniest bit of sound would open the gate, but when the modules were idle, it didn't raise the noise floor. They're just noisy. I mean, they were cool, but they were early versions. Now, when I play those sounds in FM8, there's no noise floor at all, but otherwise they sound the same.

What were you using those on in '99 when Billy supposedly gave up touring and then came back?

Billy's music spans 30 years and he always used whatever was new and current. So through the '80s there were DX7s used here and there, and there's no other way to get that sound. It has a character to it—FM synthesis—so it just doesn't sound right if you do it from something else. For example, the bells in "We Didn't Start the Fire"—that's a DX7 patch.

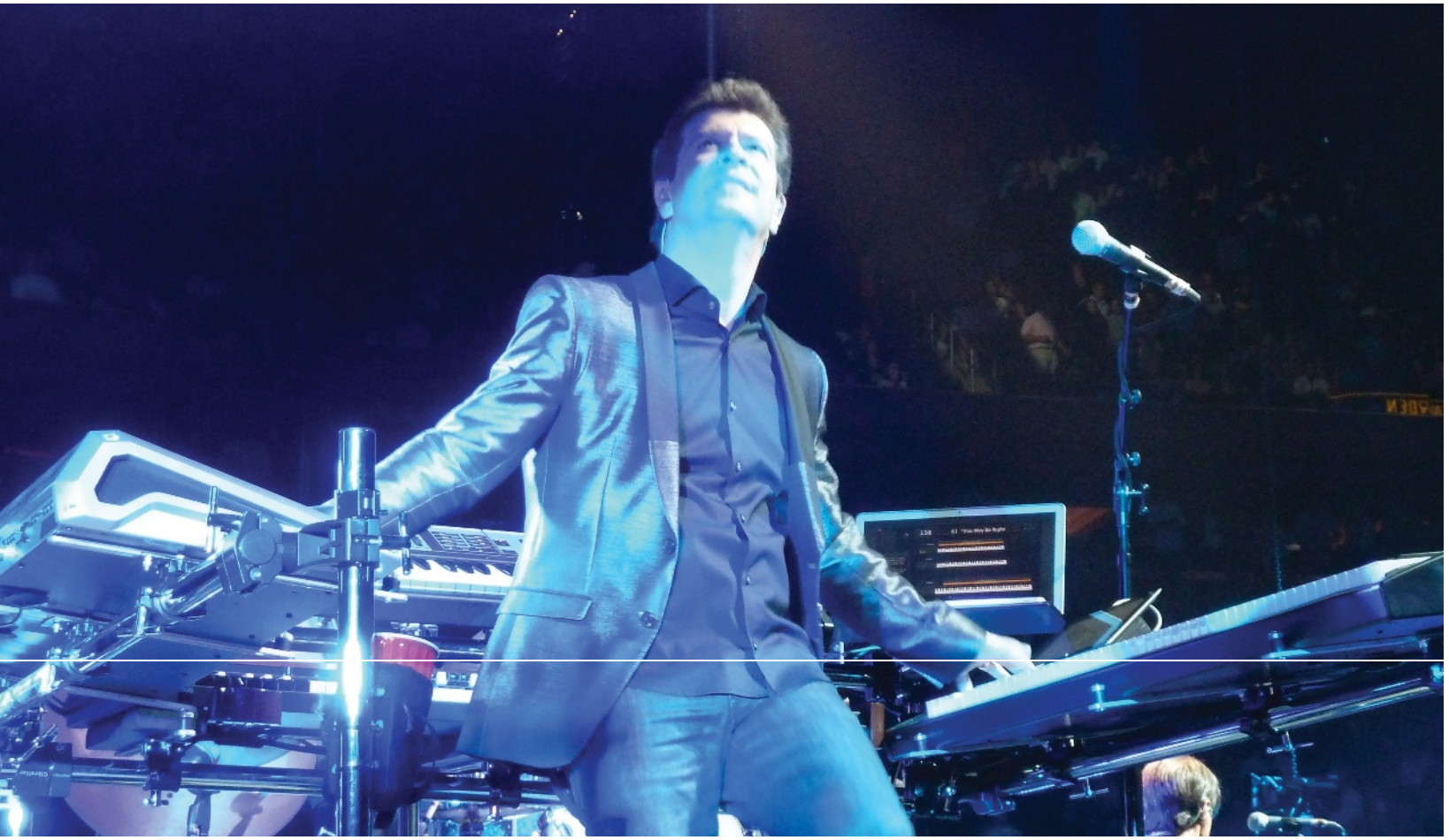
The intro of "This Is the Time" is a DX7 patch. He used to always play that on piano live, but now with the new rig I designed for him, he has FM8. He's playing a [Kawai] VPC-1 controller through two Muse Receptors. His main piano is Ivory American Concert D, but I also have Komplete 9 on the receptors, which hosts FM8 for that DX patch, and also Scarbee's electric piano sounds.

How are you handling set lists and program changes?

I'm using iPads for program changes, with the Unreal Book app and an IK iRig MIDI interface. Basically, you can keep PDFs of all your charts and you can create set lists from them. But you can also attach a MIDI string using hexadecimal code to each PDF, so that when you call up the chart, it sends out program changes. So I exported PDFs from Microsoft Word containing just the title of each song and I have them all in Unreal Book. I put them in the order of this show and we patch through it. I have two for backup, and a third organized alphabetically.

What's the alphabetical list for?

Let's say Billy calls a tune that's not in the set, or maybe one of the iPads dies. I also have the printed set list on the floor so I can still jump from song to song. I set up the same thing in Billy's rig so every song has its own program, even if he uses the same sound. That way, if he wants to change the key of a song, I can change it on that patch. It doesn't affect anything else. And then everything goes by song title.



How do you get your Hammond sound these days?

Well, Native Instruments discontinued B4-II, so now I have a Hammond XK-3C running through a brand new Leslie 147. It sounds great.

What role does the Kurzweil K2600 play in your rig?

It's the main controller, and I also have versions of almost all of Billy's songs programmed using its sounds. They don't sound as rich and as full as on my big soft synth rig, but I had to do a lot of them for the *Movin' Out* musical, and they all had to be sourced from one keyboard. Also, we travel light for corporate gigs, and if I'm doing those tunes with anybody else I just bring that one keyboard.

Another reason is that when it came time to set up this new system, I had to reprogram the sounds for every one of these songs. I now have 81 songs programmed in Apple MainStage. I have to be ready for him to call any song. I used to have them all mapped to different hardware sound modules via Opcode Studio5 interfaces and OMS, and as you can imagine, setting up a song on a new platform is time-consuming. Some songs take me a whole day or two to get right. So when I first started using MainStage, if Billy called a tune I hadn't programmed yet, I had to be able to go back to the K2600 sounds so I could get through it. For that reason, I'm still using the K2600 as a controller. I like the way it feels, too.

As I got smarter with MainStage, I made everything work from one keyboard. Now that I have all the sounds mapped out, I could play any of those 81 songs from one keyboard if I had to. The zones are duplicated on the other keyboards, so I can do my thing and throw shapes in front of the crowd, play a chorus on one keyboard and a verse on another, that kind of thing.

You used Opcode gear for the longest time, even after the company went under. Why?

I used it because it was great. They went under just before USB, so they never came out with USB versions of their MIDI interfaces. But for ten years nobody came out with any product that could do what the Studio 5 could do. So I kept using the Studio 5 for many years to protect the thousands of hours of programming time that went into all those sounds that I had, and because I was waiting for something else to come along that could do it.

So what came along?

MainStage. But the early versions of MainStage couldn't quite do it. Version 1 was okay. Version 2 started to get pretty powerful, but I'm using version 3 now and I have 99 percent of the features that I need.

What would you still like to see in terms of features that you need?

MIDI plug-ins was a suggestion I made, so it was cool when they put it in version 3. Now, I'd like to see multiple aliases inside a patch.

What are aliases?

In order to be memory-efficient, you only want to load the samples for a patch once. Most of my patches are at least 700 or 800 megabytes in size, and they all stream. I might use that sample set repeatedly, but with different MainStage channel strip settings on different songs. So they have a thing called "aliases." The samples load just once, and then when you use a patch again and again, the aliases give you control over the channel strip parameters. But you can only have one alias inside of one patch, and I'd like to use more than that. I might want to double it an octave or have a different version of it that's darker with less velocity or whatever. The Receptors have a similar function, but they let you use the same samples in lots of different patch and multis.

With all the MIDI flying around between MainStage, the Receptors, and your keyboards, have you ever had a big "MIDI panic" moment?

Not very often. When I designed my first incarnation of this big rig with the Studio 5, the concept of routing lots of modules and keyboards was much newer. In the early days there were a lot more issues with stuck notes. It doesn't happen very often now, but it does every once in a while. So I do have a panic switch that sends MIDI note-offs on all channels.

Rosenthal's stage keyboards, left to right: Roland Fantom-G6, Kurzweil K2661 above Hammond XK-3C and Roland PK-5 pedalboard, MacBook Pro running MainStage, iPad running Unreal Book for set list-driven program changes, and Kurzweil K2600X.

Under the Billy Joel stage are fully redundant virtual instrument-hosting systems comprising MOTU UltraLite Mk. 3 and MIDI Express XT interfaces, MacBook Pros, Muse Research Receptor 2 Pro+ host machines, RME A/D converters, and Radial SW8 audio switchers.

What do you envision changing in the rig in the near future?

[I don't see myself] using the iPad for sounds. The issue with the iPad is, it's still a wireless device, and I don't trust wireless in a live atmosphere. A cable can fail, fair enough, but I won't use anything wireless. That said, plug-ins and software synths are really coming into their own. You don't need walls of keyboards and modules. I have all those keyboards onstage, but they're mainly controllers.

Are there any on which you use the internal sounds?

The only ones that have audio connected are the Hammond, which is going through the Leslie, and my Kurzweil K2600X as the emergency backup. I set up two MainStage systems that are running all the time and completely independent of one another.

If one goes down, it won't bring the other with it.

Exactly. If one goes down, I have a Radial switcher, the SW8, which switches eight channels of audio. So if I have a problem I can't resolve, I just have a remote footswitch on the stage that switches me to my "B" system and I keep playing away. Then my tech can re-launch the other one while I'm playing. In an extreme emergency, which hasn't happened yet, if both systems went down at the same time, I have a second Radial switcher, which switches between the active MainStage rig and the audio outs of the Kurzweil, which I could then play standalone. As a last resort, my failsafe is the organ through the Leslie. It's intentionally not part of my MIDI system.

So you technically have a threefold system.

Correct. The downside of using software synths is that, to restart a computer and get back to where you were, it takes an eternity if a song is playing. Even the Kurzweil has a lot of samples in it and it takes five minutes to load. I can't have that. I have solid-state drives in everything and external SSDs connected via Thunderbolt. It's slamming fast, but still not an acceptable amount of time to have my rig down. Hence the redundant systems.

When I programmed my first incarnation of this MainStage/Receptor rig, I was going to use it at the *12-12-12* concert we did. We were only going to do five songs, but I knew that Billy might want to add few others so I programmed up, like, 15 songs. I was all excited, and it didn't work. I was using FireWire 800 and conventional hard drives, and it couldn't keep up with my playing. I couldn't play big chords; it was sluggish. Not latency—it just couldn't stream fast enough to keep up.

So what did you do for that show?

I used my Kurzweil. I'd just spent a year using [Redmatica] AutoSampler to sample all of my huge layers and patches and everything. And then the rig didn't frickin' work! I was kind of losing it there for a minute. But within two months, Thunderbolt came out and then solid-state drives, and I switched over to that and all of a sudden it worked. So now it can keep up with my playing. I don't have polyphony limitations with streaming patches. Little by little I started programming, and then Billy decided he wanted to start doing shows again, and that was as my catalyst. I said, "That's it. I'm going in the deep end. I'm not coming back."

You also used to use real Moog Taurus pedals in your rig.

I had the Taurus 1. The Taurus 2 didn't sound right to me, but the recent Taurus 3 captured the sound right on the money. However, I could get so much more mileage out of MIDI bass pedals and use samples of my Taurus pedals. I ran them through an Eventide Harmonizer--not in series. I split the signal with a slightly detuned version, which gave it a great natural chorus—or more like a doubling effect. I fattened it up, added a little boost at 3kHz to give it a teeny bit more presence, so when there are big guitars happening it cuts. I have a sample of that that I use to this day, mapped to my MIDI bass pedals.

Do you use that sound in the Billy Joel show?

I sometimes use it at the end of a big song on the last chord. For example, the end of "We Didn't Start the Fire" we hit this huge chord. I use it on "Allentown." In the bridge, there's a low pedal tone on the record.

Also, I can do string lines, and I sometimes map stacked chords to single pedals. I haven't had to do that too much with Billy because he plays piano and I play the other parts. But when I played with Enrique Iglesias, a lot of his records were full of keyboards. The chord changes were fairly straight-ahead in his earlier years. So using my Opcode Studio 5, I'd stack up chords so I could play a pad with my feet and I would just know the *F* pedal is the *I* chord, the *G* is the *II* minor seventh, and so on. Then sometimes I'd transpose part of the keyboard so that I could play two lines within the stretch of one hand that would otherwise be impossible to reach.

What would you recommend to normal kids—not gifted prodigies—who are starting out?

Find a good teacher. If you're not getting enough out of your teacher, find somebody else. Every student grows at a different rate, and just because a teacher might be knowledgeable and the student might want to learn doesn't mean there'll be a synergy.

I'm also a big proponent of understanding how your gear works. Ten years from now, you'll be playing on equipment that doesn't exist today. Most of what I use today was unfathomable when I was first learning synth programming. But it's all the same stuff—just in software. I'm able to get the most out of software today because I learned the concepts of audio signal flow, MIDI routing, and synthesis. So don't just fiddle with the knobs until it sounds good. Learn *why* it sounds good. ♫

• Our conversation with David Rosenthal continues.

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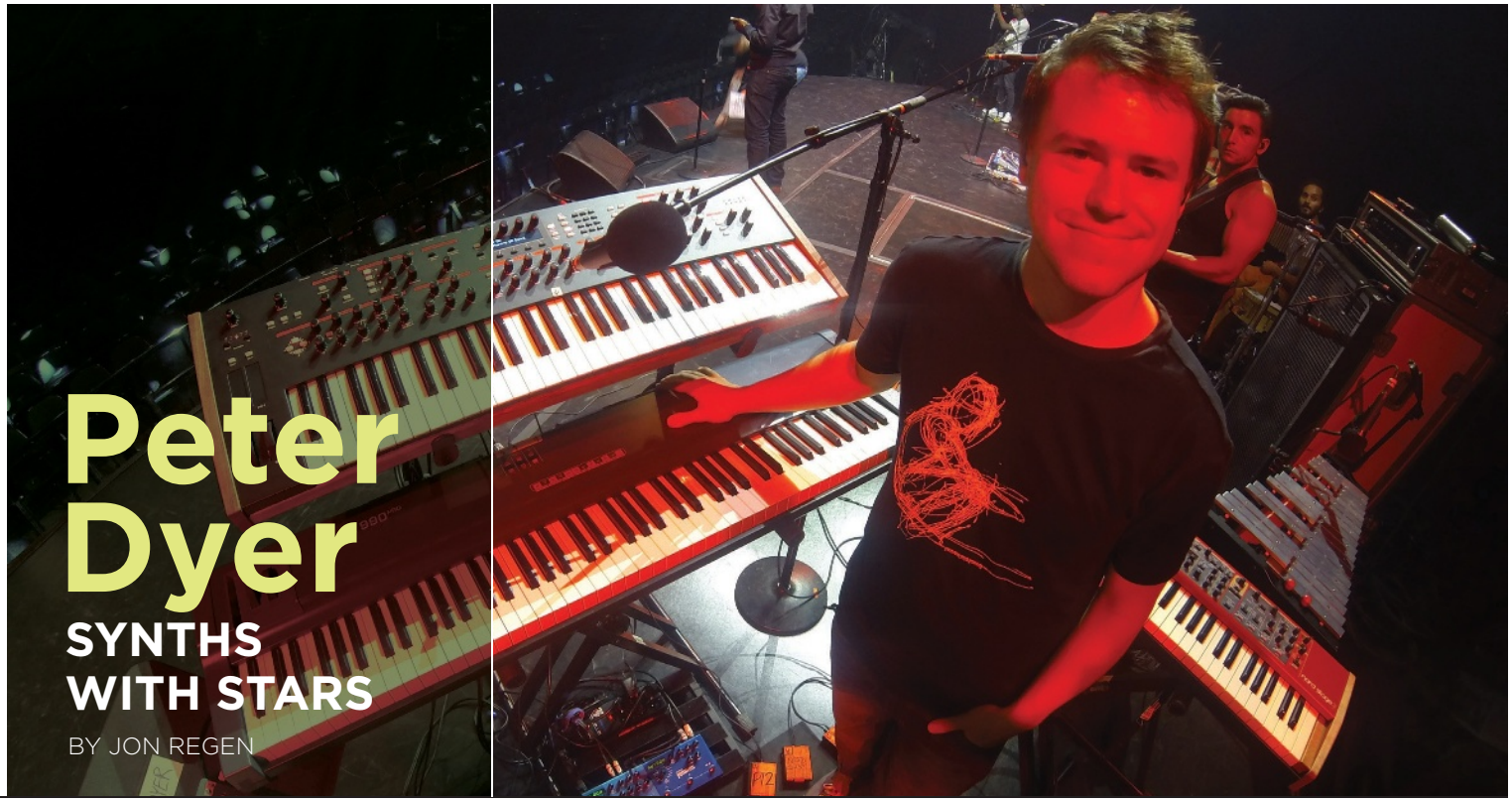


Peter Dyer

SYNTHS WITH STARS

BY JON REGEN

KEYBOARDIST AND PROGRAMMER PETER DYER HAS PLAYED WITH EVERYONE from Van Hunt to Mariah Carey. He's currently touring with Aloe Blacc, the opening act for Bruno Mars' "Moonshine Jungle" tour. Find out more at peterdyer.net.

HOMETOWN: Keizer, Oregon.

MUSICAL TRAINING: I was lucky to study under Portland jazz-whiz Randy Porter in high school. Proper schooling came after at Mount Hood Community College, where I also found a forgotten Roland Juno-60 in the closet. I made demos on my Korg Triton sequencer and had to program tons of sounds for the school musicals, which taught me a lot. Then I did a year at Musician's Institute in Hollywood.

FIRST GIGS: Local shows with a rock band in high school, where I desperately tried to make an old ROMpler sound cool! After that, playing underage at Portland bars and breweries with a jazz quartet and a funky jam band.

MUSICAL INFLUENCES: Sly Stone's "There's a Riot Goin' On," ELO's "Out of the Blue," Tower of Power, Chick Corea and Return to Forever's "Romantic Warrior," M83, ELP., Tomita, and the opening scene of *Blade Runner*.

WHAT I'M LISTENING TO RIGHT NOW: White Sea, St. Vincent, Deadmau5, Chvrches, Active Child, and Tame Impala. On the road, Woob is also a constant fixture for ambient bus snoozing.

INSTRUMENTS PLAYED: Any knobby synth, trombone, background vocals, and custodian of playback.

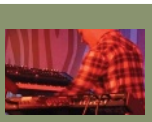
MY BIG BREAK: Dropping out of school to tour with Van Hunt. Van has been a mentor, friend, and major musical influence ever since. Soon after, through Randy Jackson (who helped manage Van Hunt), I got an audition for Mariah Carey's band. That was a fusion-reactor jumpstart to my career.

LATEST GIGS: Performing and writing on Avicii's "True." I'm on the Number One single "Wake Me Up" and two other songs that I helped co-write. A six-hour talkbox session for "Shame on Me" made my tongue raw. Jamming with Nile Rodgers—though that song didn't make the album—I was a nervous wreck going in, but I played some chords to check levels and he immediately jumped on with a groove, which turned into a ten-minute, ice-breaking duet. That was an absolute career highlight for me. I've also joined and recorded with a band called Cameron the Public, where I play loud synths and Farfisa. That's a lot of fun.

FAVORITE KEYBOARD GEAR: The Dave Smith Instruments Prophet 12 is near and dear to me. I designed some of the factory presets, too. A Nord Stage 2 goes with me everywhere. Also my Minimoog Voyager, Dave Smith Mopho x4, Therevox, Farfisa Compact (red), and a Yamaha CP-70 electric grand slathered in chorus and reverb.

WHAT'S NEXT: Much more with Aloe Blacc, including some remixes, a tour with St. Vincent this fall, more writing with Cameron the Public, and then going down the modular synth rabbit hole.

ADVICE: First, come prepared and be a good hang. Second, get out and participate in whatever world you intend to get work from. Listen to the radio, go to shows and hang out after, support other musicians, check out new acts, read blogs, keep up on technology, and listen to new music. It keeps you fresh. ♫



Peter Dyer takes a Prophet-12 solo with Van Hunt.

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5 WAYS TO PLAY LIKE Bruce Hornsby

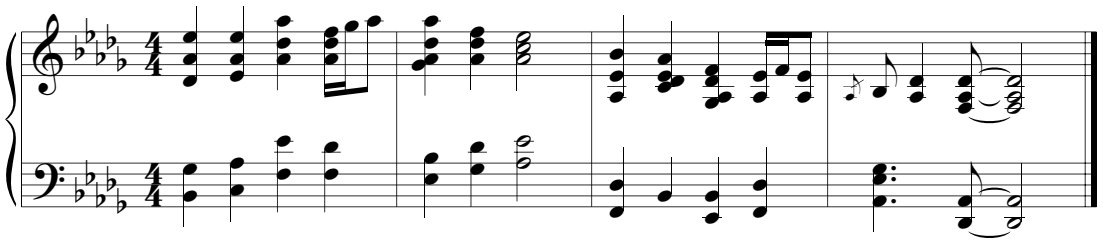
BY JEFF BABKO

I RECENTLY HAD THE PLEASURE OF SEEING THE BRUCE HORNSBY/PAT METHENY "CAMPFIRE TOUR" WHEN IT STOPPED by the Greek Theatre in Los Angeles. I was immediately reminded of Bruce's debut record, *The Way It Is,* and the influence his piano playing and composition style had both on my development as a musician, and more significantly, on music as a whole. With its extended, Keith Jarrett-meets-Leon Russell-inspired piano solo, "The Way It Is" was quite a departure from the pop hits of the bands like Wang Chung, which permeated the airwaves of the day. It also went to Number One on the charts.

Many years ago, I met Bruce when I was a wide-eyed 13 year-old, inside the now-defunct Kingsound Studio in Van Nuys, California, where Bruce had cut the demos for *The Way It Is*. When his first record was released and exploded on the radio airwaves, I felt like I had an actual connection with a bona fide piano hero, as if I'd brushed up against Superman. In the 1980s and '90s, a time that celebrated programmed and packaged music, having an inspiring figure who actually *played* and *created* music in "real time" on an acoustic instrument was a rare treat. Bruce always championed improvisation and pushed the musical envelope. He continues to break boundaries even today, sneaking influences of contemporary classical composers such as Arnold Schoenberg and Elliott Carter into his music.

After seeing Hornsby's recent concert at the Greek Theatre, I was thrilled to reconnect with the true originality of its style, and I was struck with what a technical giant he is on the piano. He's also hilarious, gracious, and has been a big supporter and friend to this still wide-eyed, no-longer-13-year-old. Let's explore some of Bruce's signature musical traits. For continued study, I encourage you to dig deeper into Bruce's vast recorded catalog.

Ex. 1.



1. Great Wide Open Intervals

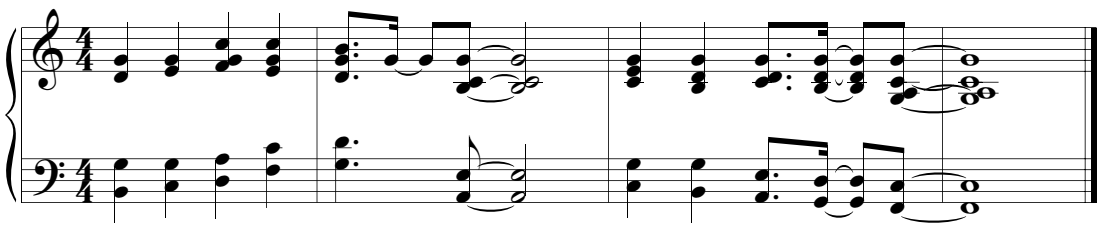
Ex. 1 illustrates how Bruce often uses open intervals, with occasional jazz "crunches" like the minor eleventh in beat 1 of bar 2, and the minor ninth in beat 2 of bar 3. Also important here is the simple melodic content. If you just solo the top line as a melody, it is singable and almost hymn-like. This makes sophisticated or Copland-esque harmonies even more supportive and palatable for the average listener. Note that Bruce often favors the richness of black note keys like *G♭* and *D♭*, which adds to the character and weight of passages like this one. (Listen to other Hornsby tunes like "Love Me Still," and the intros to "Harbor Lights" and "Dreamland" for more examples.)

Ex. 2.

2. Go Fourth

Ex. 2 explores Bruce's use of quartal harmony, which is voicing in intervals of fourths instead of the more traditional discipline of building chords in thirds. (Note: the seminal pianist McCoy Tyner popularized the use of quartal harmony in jazz). An interesting aspect of how Hornsby adapts his quartal harmonies can be seen in this example, as it is juxtaposed over a simple boogie woogie type bass/left hand riff. (Check out Hornsby tunes like "The Valley Road," "Long Tall Cool One," "Fire on the Cross," and the outro of "Harbor Lights" for more examples.)

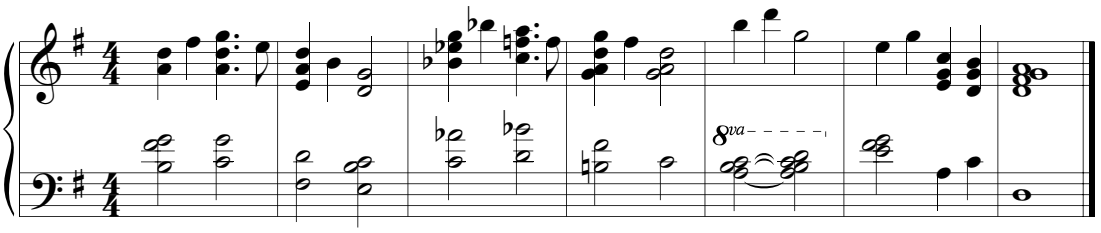
Ex. 3.



3. Your Own Walk

Hornsby's songwriting style rarely includes garden variety walk ups and downs like *I*, *ii min*, *I/III*, *IV*, and so on. He likes to change things up as in **Ex. 3**, much like a jazz musician might re-harmonize a tune, while always keeping in the Americana theme or open diatonic voicings with the bass note often providing the surprise element. In this short passage, what could be a simple walk up and down in the key of *C* gets a surprise when the bass hops up to the I over IV chord in beat 4 of bar 1. Also notice the crunch notes here, like the minor eleventh in beat 3 of bar one, and the minor ninth in bar two (grab both the *B* and *C* with your thumb). You can also grab the *G* and *A* in the final open *F add2* chord with your thumb. (Check out the pre-chorus to "A Night on the Town" for another example of this technique.)

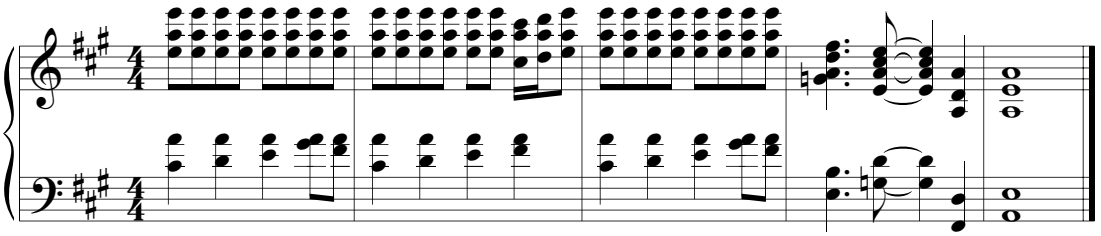
Ex. 4.



4. Lust Clusters

Hornsby often toys with Bill Evans-type chord clusters, as seen in **Ex. 4**. He usually shies away from basic triads, and when exploring the "prettier" piano stuff, he often also shies away from dominant sevenths as well. These pretty clusters combined with open fifths echo the Copland-like feel of Americana music. (Listen to the piano on the intro of Hornsby's song "The Show Goes On" for an example of these kinds of clusters.)

Ex. 5.



5. Open Fifths

Open fifths in the right hand, seen here in **Ex. 5** impart a folky, anthemic feel to Hornsby's music. Note the cadence here as well; Hornsby rarely plays a typical rock and roll, *V-IV-I* or any variation thereof. He either changes the bass note to invigorate the inversion, or he changes the chord completely. He also rarely resolves things to a major triad. In this case, he resolves to a powerful open fifth, from the IV chord with the third in the bass. (Listen to the intro to "The River Runs Low" to hear Hornsby's use of open fifths, and the intro to "Look out Any Window" to hear this kind of open fifth resolution.)

Practice Tip

"One thing that's particularly endearing about Bruce Hornby's signature pianistic and compositional approach is that it somehow perfectly encompasses the sound of Americana music, saluting American composers like Charles Ives and Aaron Copland, as well as folk and bluegrass music, and the use of simple blues inflections and intervals such as open tenths." says **Jeff Babko**, best known for his spot in the house band on *Jimmy Kimmel Live*. He has recorded with Frank Ocean, Jason Mraz, Sheryl Crow, and Alanis Morrisette. Babko's new album *Crux* is out now. Find out more at jeffbabko.com..

Listening List

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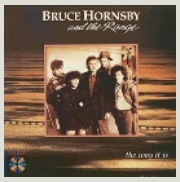
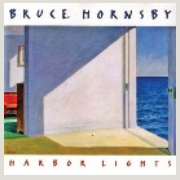
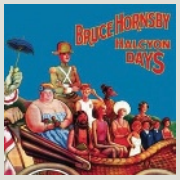


"The Way It Is"
The Way It Is

"The Valley Road"
Scenes from the Southside



"Harbor Lights"
Harbor Lights



"Dreamland"
Halcyon Days

Bruce Hornsby – "The Way It Is"

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Contemporary Cuban Piano

JAZZ LINES AND IMPROVISING OVER CLAVE

BY MANUEL VALERA

I'D LIKE TO TALK ABOUT TWO STYLES OF CUBAN MUSIC: THE *DANZÓN* AND the *Guaguancó*, how they can be adapted to jazz, and how to improvise and internalize their rhythms. Many New York musicians and composers such as Yosvany Terry, Dafnis Prieto, and myself with the New Cuban Express, have been working on the concept of adapting folkloric Cuban musical styles to jazz. The result has been a refreshing take on Cuban music that goes beyond your typical "Latin jazz."

I grew up listening to Cuban pianists like Emiliano Salvador and Bebo and Chucho Valdes, but also to jazz pianists like Bill Evans, Chick Corea, Keith Jarrett, and Wynton Kelly. So it was only natural that I wanted a way to blend these two styles together. Below are some of the concepts I've used over the years to merge Cuban music with jazz. As with any musical style, the more you listen to Cuban music and the *Clave* (the standard rhythmic pattern used in Cuban music), the more comfortable you'll feel playing it.

Practice Tip

"When practicing these examples, it's a good idea to *snap* the Clave rhythm with your left hand and play the right hand lines on their own before playing with both hands together," says New York-based pianist and composer **Manuel Valera**. Born and raised in Havana, Cuba, Valera has garnered acclaim both on his own and as a sought-after accompanist with artists like Arturo Sandoval, Paquito D'Rivera, and many others. Valera's album *New Cuban Express* was released in 2012 and received a 2013 Grammy nomination for Best Latin Jazz Album. His latest release, *Self Portrait,* is out now. Find out more at manuelvalera.com.

Ex. 1.

Ex. 2.

Ex. 3a.

Ex. 3b.

1. Traditional Contradanza

Ex. 1 is a traditional type of Cuban piano playing called the *contradanza* that later evolved into the *Danzón*. The Danzón is Cuba's national dance, and improvisation is an integral part of this style. Contradanzas were typically performed *solo*, while Danzones were typically performed with a ballroom orchestra. (Look for compositions by composers like Ignacio Cervantes and Manuel Saumell, two of the main exponents of this style. Ruben Gonzales and composer Ernesto Lecuona also popularized it.)

2. Modern Contradanza

Ex. 2 is a representation of the modernization of the contradanza. Cuban pianists like Emiliano Salvador, Chucho Valdes, and Gonzalo Rubalcaba have pushed the envelope of this style into the 21st century. It's important to play these examples slowly at first using a metronome. This will not only help you feel the beat, but it will also help you understand the syncopation and coordination needed between both hands here. By not having both hands play at the same time (block chord style) you can fill in some of the subdivisions, propelling the groove a bit more. You can hear an example of this type of playing on my composition "Danzon," from my 2013 album *New Cuban Express*.

3. Jazz Meets Contradanza

Ex. 3a is an adaptation of a McCoy Tyner-type line over the figure from Ex. 2. Note that this line starts on the "2 side" of the Clave (the beginning of the phrase/bar). A good rule of thumb as you begin to deal with playing over a clave is that if a song is in *2-3* Clave (two pulses, then three), you should start your lines on the downbeats. If a song is in *3-2* Clave (vice versa), start your lines on the *upbeats*. **Ex. 3b** is a line that starts on the "3 side" of the clave (the middle of the phrase/bar). This is very elementary , but as you feel more comfortable with these rhythms, you can adapt other types of phrasing to them.

Ex. 4.

Ex. 5.

4. The Guaguancó

Another style of Cuban music is the Guaguancó, which uses mostly percussion and voice and is shown in **Ex. 4**. This style actually helped me understand the Clave on a much better level. (For further study, listen to groups like Los Muñequitos de Matanzas and Los Papines to get a better sense of this kind of playing.) Start by tapping the Clave with your left hand and then try to play the figure with your right hand only. After you feel comfortable with the right hand part, try to incorporate the bass part with the left hand. Feel free to loop each bar as well. Later on, you can change the notes using the same rhythmic cells as a foundation.

5. Upbeats and Syncopation

Ex. 5 continues the merging of Cuban and jazz styles with a more complex line that uses only upbeats. Try it slow with the Clave in the left hand until you feel the syncopation naturally. Then introduce the bass line. The second part of this example is a variation on the first that fills in the subdivisions, thus creating more of a jazz line with the feeling of the Guaguancó. ♫

Listening List

GREAT CUBAN PIANISTS

Emiliano Salvador
Ayer Y Hoy

Ruben Gonzalez
Chanchullo

Gonzalo Rubalcaba
Mi Gran Pasion

Chucho Valdes
New Conceptions

Bebo Valdes
Bebo Rides Again

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- Hear Manuel play the audio examples from this lesson online.
- Separate lesson on playing to the Clave rhythm.

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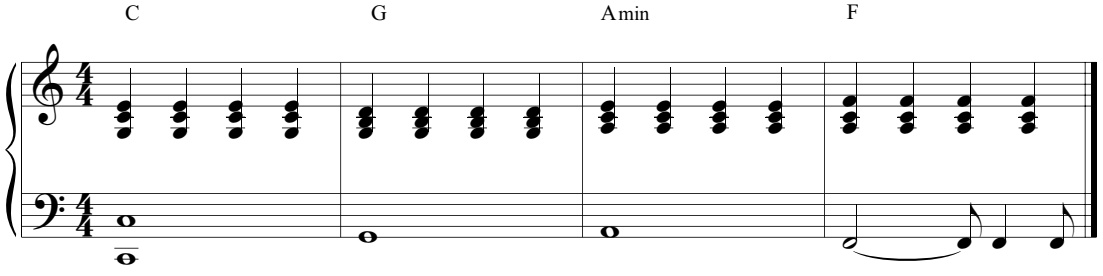
HARMONIC HELP DESK

Jazz Concepts for Pop Keyboards

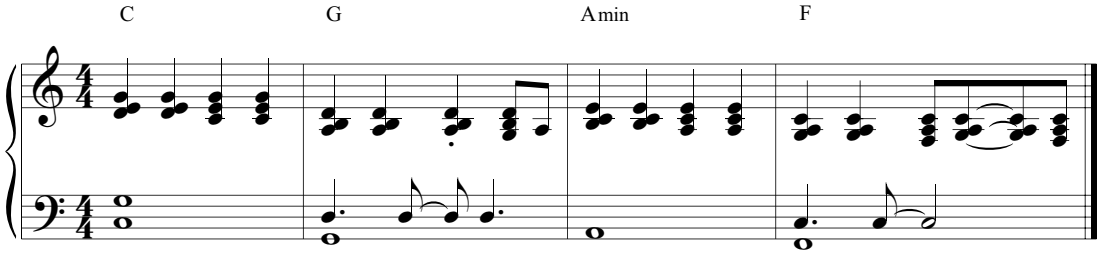
BY BEN STIVERS

A KEYBOARD "COMPING" (SHORT FOR *ACCOMPANYING*) PART CAN REALLY DETERMINE THE CHARACTER OF A SONG. A dash of harmonic color here, a bit of movement there, and some added chordal tension can really bring a song to life. Here are a few devices I use regularly that are sure to help you add some flavor to your music.

Ex. 1.



Ex. 2.



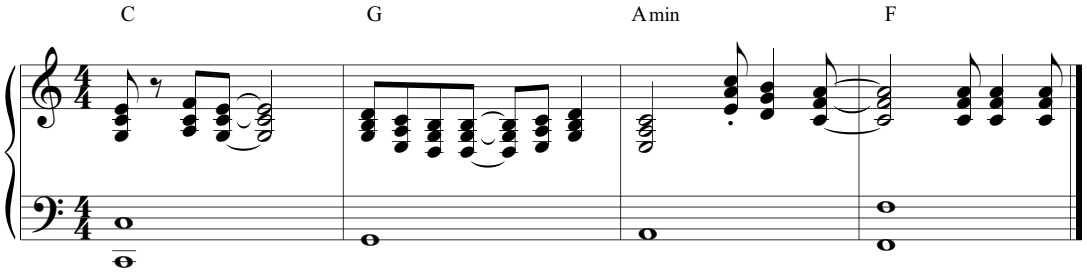
1. Generic Progression

Ex. 1 is a fairly generic pop chord progression, played as triads in quarter notes. This pattern exists in thousands of well-known songs, and there's absolutely nothing wrong with it. Sometimes, simpler is actually better. But read on to find out how to spice this up a bit.

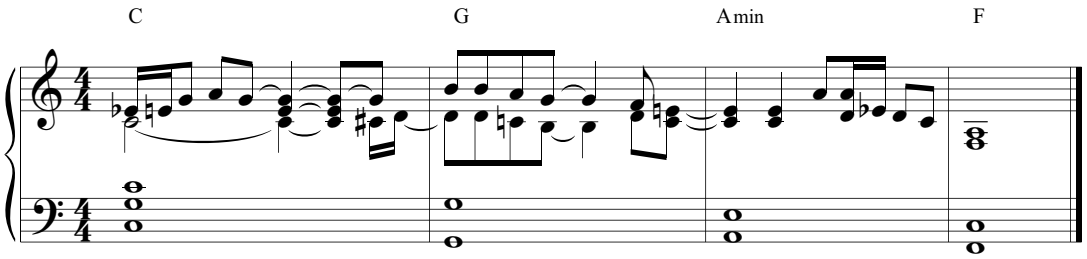
2. Basic Colors

Ex. 2 shows the evolution of our chord progression. Adding the ninth is a nice way to give a voicing more weight without drastically altering its basic character. The same can be said of adding the flatted seventh on a minor chord. Experiment with leaving out the thirds of chords altogether, especially if they're already being played by others in your ensemble.

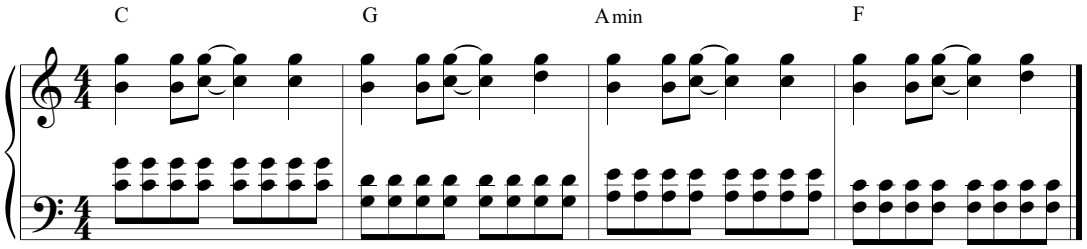
Ex. 3.



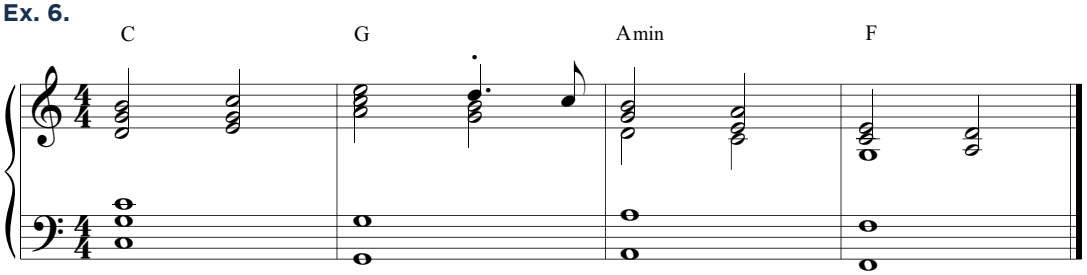
Ex. 4.



Ex. 5.



Ex. 6.



3. Diatonic Passing Chords

Ex. 3 employs diatonic passing chords to create interest and movement in a track without playing single-note lines, which often times impart too much of a melodic identity. Tip: Practice scales in diatonic triads to develop this kind of tonal vocabulary. Play major, natural minor, harmonic minor, and melodic minor scales in all three inversions in all 12 keys.

4. Blues It Up

In **Ex. 4** we get down and dirty by adding some blues extensions to our voicings. This really adds character to a song—if the melody will allow it. The diatonic passing chord technique is employed here again as well.

5. Pedal Tones

A repeated figure or voicing is a great way to introduce extended chord tones into a simple progression, as seen in **Ex. 5**. Here, we end up with a *G11*, an *Amin11/9*, an *Faug11/9*, as well as the *C 7/9* that starts us off. These may seem like fairly exotic chords for pop, but the repeated pedal tones make them work.

6. Upper-Structure Triads and Suspensions

Ex. 6 expands our comping choices even further, adding upper-structure harmony and suspensions to the mix. This example is actually an extension of Ex. 3, where playing scales in triads diatonically will reveal many of the possibilities here. To use this technique in your comping, examine the chords of a song to determine which triads exist in the upper note structure of each chord. Now use one of those triads, rather than the fundamental one, as the foundation of your voicing. For example, in bar 1, the *G* triad is from the fifth degree of *C* major. The *Amin* triad in bar 2 is from the second degree of *G* major. In bar 3, the *G* triad is from the seventh degree of A minor. In bar 4, the *C* triad is from the fifth degree of *F* major, and the *Dmin* triad is from the sixth degree of *F* major. Delaying the resolution of these triads back to chord tones creates additional tension as well. Finally, remember always to be mindful of the melody! ♫

Practice Tip

"I learned many of these techniques from checking out guys like Chuck Leavell and Bruce Hornsby, as well as Blue Weaver's work on the *Saturday Night Fever* soundtrack. Also, Paul Meany of MuteMath deserves honorable mention as a champion of the pedal tone," says Brooklyn, New York-based pianist and composer **Ben Stivers**, who has toured and recorded with artists like Gregg Allman, Patti Austin, the Bee Gees, Groove Collective, and Matchbox Twenty. Stivers is currently playing with Robin Mckelle and the Flytones, as well as with an upcoming organ project with jazz guitarist Rez Abbasi.

SOUNDCLOUD

Hear Ben play the audio examples from this lesson online.

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THE ART OF SYNTH SOLOING

Shades of Blues

BY JERRY KOVARSKY

ADDING SOME BLUES LICKS TO A SOLO IS A SURE WAY TO CONNECT TO YOUR audience, and for many genres of music, this is the essential vocabulary you should be drawing from. But did you know that there's more than one blues scale? Read on!

The Blues Scale

The common blues scale that students are taught is shown in **Ex. 1**. It consists of the root, flat third, fourth, sharp fourth (a.k.a. flat fifth, tritone), fifth, flat seventh, and back to the root. You'll notice that unlike the scales and modes we have discussed in the past two columns, the blues scale only has six distinct notes, or seven if you include the repeated root/octave. These notes clearly outline a minor seventh chord based on the root, with the added fourth and flatted fifth, so it works well against a minor seventh chord, or a dominant seventh with a sharp ninth. When you listen to blues and rock guitar players, organists, and synth players like George Duke, you will hear how they can play blues licks over both minor and major chord vamps, the blues changes, and other chord progressions; imparting a lot of feeling and expression from their lines. In **Ex. 2** I show a couple of simple blues licks, which can work against a single chord, or some varying progressions.

As a synth player, integrating bends is essential to "speaking the blues." So in **Ex. 3** I take those same licks and show how you might integrate some well-placed bends into the phrases. As we discussed way back in February and March of 2012, you can really get emotional when you bend slowly and play a bit more "between the cracks" of the notes, especially when bending up into the fourth, flatted fifth, and fifth of the key center (in this case, the *F*, *G♭*, and *G* notes in the key of *C*). Be sure to use the whole vocabulary of bends: don't just always bend up into a note, bend up and down, scoop into a note, and do a slight "fall" or "doit" off when releasing a note (by bending down or up slightly as you release the key). Set your bend range to a minor third (or higher!) and practice bends from within the scale note choices as shown in **Ex. 4**.

Ex. 1. The blues scale.

Ex. 2. Simple blues licks.

Ex. 3. Adding pitch-bends to those licks.

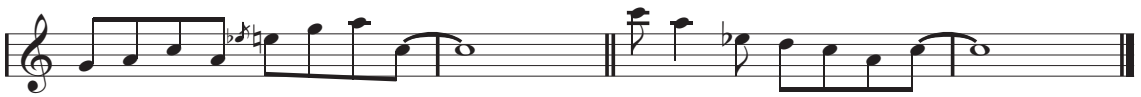
The Major Blues Scale

Relying solely on the blues scale can get a bit monotonous after a while, especially when used over a major or dominant seventh chord or progression. One reason is that the major third of the root key chord (*E* if in the key of *C*) is never played . When you want to play bluesy but in a more major-sounding way you can use the *major* blues scale. As shown in

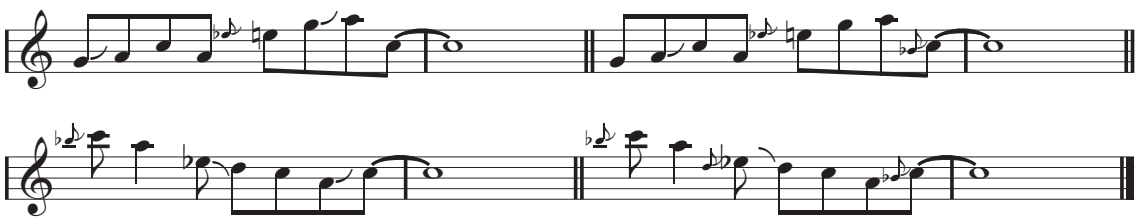
Ex. 4. Suggested pitch bends from within the blues scale.

Ex. 5. The major blues scale.

Ex. 6. Simple major blues licks.



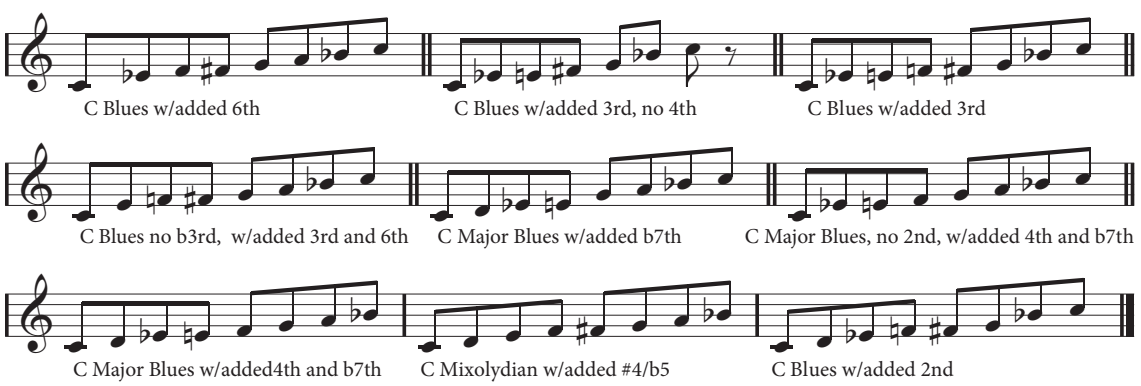
Ex. 7. Adding bends to the above.



Ex. 8. Suggested scales over the IV chord in a blues.

Ex. 9. Merging the blues and major blues scales.

Ex. 10. Smaller note groupings from the merged scales.



Ex. 5, it consists of the root, second, flat third, major third, fifth, and sixth of the scale. As you play the notes you'll start to hear that this scale is the basis for a lot of rock and soul licks, horn lines, boogie-woogie piano riffs and more. If you play rock 'n' roll piano, this is one of the fundamental scales to draw on when in a major key.

The only really "bluesy" note in the scale is the minor third, and the area that you center on to play between the cracks is now between the second, minor third, and major third. **Ex. 6** presents a few simple licks using the scale, and **Ex. 7** integrates bends into them. Unlike the "regular" blues scale, you can't keep playing this same blues scale over a whole blues progression; when you move to the *IV* chord (*F7* in the key of *C*) that *E* note (the major third of the key) really doesn't work. So you'll want to use the *F* major blues scale, or the *C* blues scale—see **Ex. 8**.

Drawing from Both Scales

Since each of these scales can work on a dominant seventh chord, why not just merge them together? That would give you the scale shown in **Ex. 9**, consisting of the root, second, flat third, major third, fourth, flat fifth, fifth, sixth, and flat seventh. All the notes will sound good against the chord, but when you play the scale up and down it doesn't sound very bluesy. As I've been saying, scales are good for showing note choices, but just running up and down them is not the answer. The approach I use (I certainly didn't invent it!) is to create groupings of note choices from this scale, not to use all notes all the time. **Ex. 10** shows some common choices here. See you next month! ♫

Fig. 1. FXpansion's Amber can render the synth or play it back in real time with up to 32-times oversampling.

How to Mix with Virtual Instruments

BY CRAIG ANDERTON

VIRTUAL INSTRUMENTS (VIs FOR SHORT) ARE GREAT. I DON'T GET INVOLVED in discussions like "does a virtual analog synth *really* sound like an analog synth?" because a VI has its own sound, and should be judged on its own merits. But, a VI often has a *different* sound compared to a physical instrument, so VIs don't always sit in a mix the same way as physical ones—especially when combined with real electric or acoustic instruments. There are also certain practical considerations involved in working with VIs that aren't a factor with conventional audio tracks, so let's address all these issues in our quest for better mixes.

Bounce, freeze, or increase latency? VIs can load your CPU, so many include different modes (*e.g.*, an "eco" mode for tracking with low latency, and a CPU-hungry mode for mixing; see Fig. 1.). While some people increase latency (*i.e.*, their DAW buffer setting) during mixing, significant latency can be problematic with complex mix automation moves. Rather than freezing tracks or increasing latency, I prefer bouncing with the instrument's highest-resolution setting and then archiving the instrument track to disconnect it from the CPU. This provides the highest-quality sound *and* leaves you with an audio file you can open in the future—even if the plug-in is no longer compatible with your host or operating system.

Construct an acoustic environment. Combining a VI with miked acoustic instruments can sound "fake" because the acoustic instruments incorporate the sound of the room where they were miked. One solution is to construct a virtual room for your VI with four (or more) delays. Insert a multi-tap delay (Fig. 2), or bus your track to some delay effects set to short, prime number delays (*e.g.*, 13, 17, 19, and 23ms or for a bigger room, use 29 instead of 13ms). Set feedback for a single repeat, although sometimes a tiny bit of feedback will give a denser ambience. Mix the delays in the background, and your virtual instrument will inhabit a virtual room.

Trim the highs. Synths can produce energy in frequency ranges that no real-world instrument can touch, which is another factor that gives VIs a "one of these things is not like the other" quality. Applying a steep lowpass filter at a high frequency (*e.g.*, 10 to 15kHz) can sometimes be a magic fix to help a VI sit well in a track.

Carve out frequencies that "step on" other instruments. Much of mixing is about creating a unique space for each instrument, but not just with stereo placement. A classic example is cutting the vocal range in an instrument when accompanying a singer, but given a keyboard's wide frequency range, trimming the response for the lower left hand notes may be needed to accommodate bass (a shelving EQ works well for this).

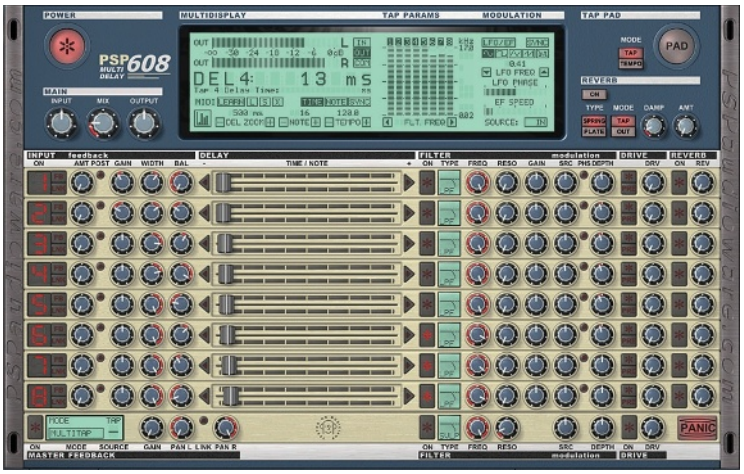


Fig. 2. PSP Audioware's PSP-608 multi-tap delay is synthesizing a room through eight short tapped delays set to 5, 7, 11, 13, 17, 19, 23, and 29 milliseconds.

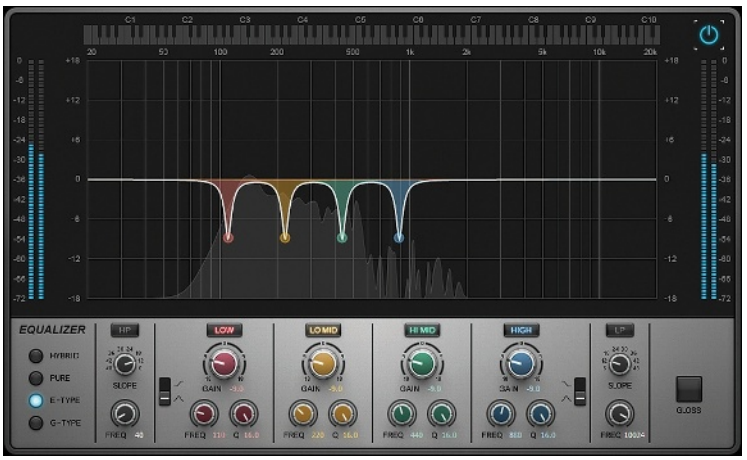


Fig. 3. Notching a key's tonic slightly at several octaves can "tighten" the sound.

Fig. 4. Front to back: PreSonus Studio One Pro 2's Dual Pan module provides independent panning for a track's left and right channels; Avid Pro Tools' mixer supplies dual pan pots for stereo tracks and a single pot for mono tracks; Cakewalk Sonar's Channel Tools module folds independent channel panning in with mid-side and stereo gain options.

I double on guitar and keys, and sometimes the guitar gets in the way because the tonic note of a key matches open strings that sustain longer and have more level than fretted notes. Compression can even this out, but then you have a compressed signal. An alternate approach is to create EQ notches at the tonic and a few octaves above (see Fig. 3). This "scales back" the guitar notes and leaves more space for the keyboards. Conversely, applying this EQ to the keys can make the guitar more prominent.

How to deal with bass frequencies. Low frequencies have it tough: Transducers have a hard time reproducing them, human ears don't hear them as well, and room acoustics sabotage the bass response with cancellations because a bass note's wavelength can be longer than the room itself. Mix the bass to center (which you have to do anyway if you plan a vinyl release), but also consider using a multi-band compressor as you would a graphic equalizer where you just happen to be able to compress the lowest band. This evens out the bass notes so they aren't as affected by other variables—without having to compress the entire signal.

Limit or compress? In a word, limit—especially with synthesizers. Hit a note that matches up with a filter's resonant frequency, and you'll hear a major volume boost. The same issue occurs if oscillators beat against each other and cause peaks. In both these situations, a limiter controls the peaks while leaving the rest of the dynamics intact. Compression is more about evening out low- and high-level signals.

Narrow the stereo spread. Stereo keyboard outputs can give a wide stereo image in a mix, but that's not always best. Again using the example of guitar and keyboards, I'll often have each instrument take up half the stereo field—*i.e.*, the guitar's right channel pans to center and the left channel pans full left, while the keyboard's left channel pans to center and its right channel pans full right. You can't always do this with pan pots on stereo channels, which usually act as balance controls. Pro Tools is an exception; with Sonar and Studio One Pro, plug-ins can split a stereo signal into two paths and pan them independently (see Fig. 4).

Pseudo-oversampling. If an older VI doesn't offer oversampling and you're running a project at 44.1 or 48kHz, you can increase fidelity with sounds having lots of high-frequency content. Open a project with an 88.2 or 96kHz sample rate, load the MIDI file driving the instrument and the instrument itself, bounce the track at the higher sample rate, then sample-rate-convert the audio back down to 44.1kHz and bring this file into your original project. For more details, see my column "Should You Record at 96kHz?" in the August 2014 issue.

The joy of amp sim cabinets. Guitar amp speaker cabinets are complex signal processors that emphasize the midrange and introduce numerous response anomalies; if you seek a more old-school keyboard sound, remember that Wurlitzer and Fender Rhodes electric pianos often went through guitar amps in classic recordings. Many amp sims let you place virtual mics in different positions on the cabinets, or place the cabinets in a virtual room. These options sometimes let a keyboard "speak" with more authority in a mix, because it can "punch through" the midrange instead of dissipating its energy over a wide frequency range. ♫

*How-to guru **Craig Anderton** is considered one of the founders of the very concept of music technology journalism. His latest adventure involves wearing the mantle of "Chief Magic Officer" at Gibson Brands.*

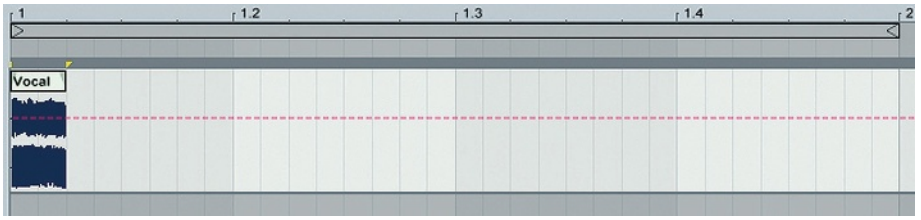
The Ultimate Pad Sound

BY FRANCIS PRÈVE

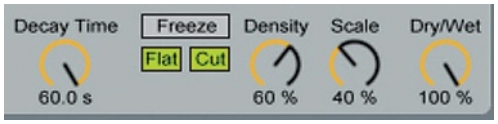
THIS MONTH, I'M DIGGING INTO MY PRIVATE BAG OF TRICKS AND GIVING AWAY ONE OF MY FAVORITE TECHNIQUES for creating unique and airy pad sounds out of, well, anything. I stumbled across this technique years ago, when the first truly long reverbs started appearing on affordable gear and software. As I was wrestling with some difficult wave loops, it occurred to me that by running a sample through a one-minute reverb fully wet—then resampling just the reverb tail—you could get some seriously breathy results.

After a decade of experimenting with this approach, I've managed to distill it into a few easy steps that can be done in pretty much every available DAW on the market. Here's how.

Step 1



Find (or record) a sample of a single note on an electric or acoustic instrument. (Sure, you can use synths, but part of the fun in this approach is to start with something relatively organic.) Guitars work well in this application, but I'm really a fan of using tiny slices of a cappella vocals to capture the nuances of the vocalist's formant characteristics. Once you've selected a sample, chop it down to a less than half a second and put the slice at the beginning of an empty track.

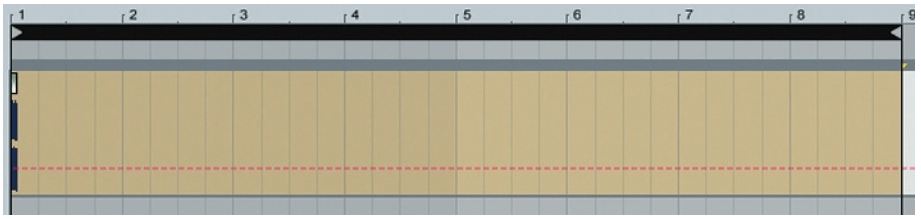


Step 2

Next, pick a lush hall or plate reverb and give it a decay of a minute or so. As with the source sample, the type of reverb you choose will have an impact on the overall texture of the result. I like using reverbs with lots of highs, since I can roll those off with a lowpass filter—or emphasize them with a phaser—after the fact. Then, set the wet/dry balance to fully wet. Pro tip for Ableton users: The standard reverb's freeze function will indefinitely sustain the tail of any sound you run through it. Lots of experimentation potential awaits the adventurous.

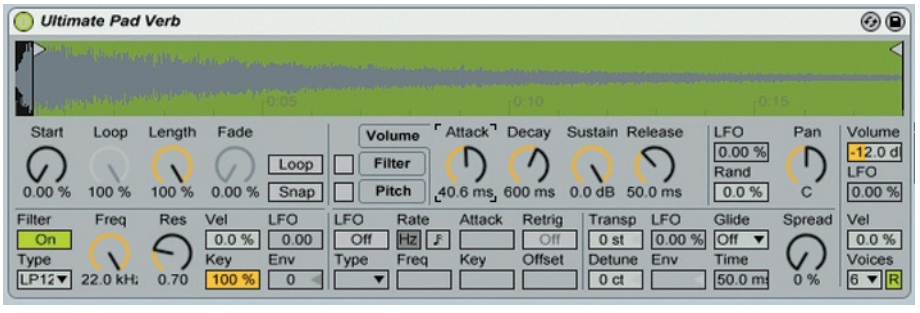
Step 3

Once you've got the reverb set up, render an eight-bar mixdown of the result. In most cases, this is long enough that you should be able to avoid looping for all but the slowest chord progressions. If you think you'll need more sustain, double the decay time and render 16 measures of the result.



Step 4

Take the reverb sample and drop it in your sampler of choice. From there, move the start point of the sample forward a bit, to eliminate any residual transient effects from the reverb. Then, soften the attack time slightly and add any preferred filtering. Now, play your chord progression. If you've followed the steps correctly, you'll be greeted with an airy, ambient pad sound that's slightly '80s-sounding and layers beautifully with warmer sounds like Fender Rhodes or muted sawtooth synth beds.



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Step-by-step audio examples.

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LEGATO
TEMPO
TEMPO SYNC
LFO KEY TRIG
MONO
UNISON/POLY
MODEL
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Roland
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ARP TYPE
ARP STEP
PITCH BEND / SCATTER
TYPE
KEY HOLD
DOWN
UP
OCTAVE
MOD

Keyboard K KEYBUY AWARD

ROLAND

Aira System-1

BY FRANCIS PRÈVE

TO SAY THAT ROLAND'S NEW AIRA LINE HAS CREATED A STIR AMONG SYNTHESISTS and producers is like saying that Tesla Motors makes some pretty nifty electric cars. While there are a few purists who insist that the original TR-808, TR-909, and TB-303 are the only "legitimate" groove instruments, the majority of users—myself included—are thoroughly impressed with the Airas' authenticity, modern amenities, and value.

That said, I'm an analog fan to the Nth degree. My first synths were pre-MIDI analog affairs like the Realistic/Moog MG-1 and Korg Polysix—and my current studio includes examples of both modern revivalist synths and obscure oddities like the Yamaha SK-50D, Davolisint, and a pristine Roland SH-101 in fully working order.

So, while I'm enamored of the Aira TR-8 drum machine and TB-3 bass synth/sequencer reviewed back in May, I was reserving final judgment on the entire product line until I got my hands on the System-1. Re-creating drum hits and acid bass lines is one thing, but delivering an accurate digital replica of a real analog synth has been the province of a select few hardware and software synths.

Design and Construction

As with the other Aira gear, the System-1 design is gloriously futuristic, with its *Matrix*-green backlit knobs and slim, wedge-like footprint.

Snap Judgment

PROS Remarkably accurate emulation of analog circuits. Included SH-101 emulation nails the original sound. Oscillator and filter drift complete the illusion of analog. Tone knob gives the overall emulation more sonic range. Scatter functions breathe new life into arpeggiator modes.

CONS Pitch envelope always affects both oscillators. Filter curves are a bit off. Keyboard is not velocity-sensitive.

The unit's back panel features the usual array of connections, including headphone out, stereo 1/4" outputs, expression and sustain pedal jacks, five-pin MIDI, a USB2 connection, and external power input. I would have loved to see Roland include the SH-101's battery power option, but this is just a quibble.

Whether in a darkened studio, dim DJ booth, or multi-tiered keyboard rig, its glowing presence will turn heads like no other synth on the market, especially when its "screen saver" kicks in.

Keeping the form factor compact and lightweight is a two-octave short-throw keyboard that eschews velocity sensitivity in favor of an extremely light action. Clearly, more than a few keyboardists are going to hate the feel, but I had no problems with it. Over the years, I've tended more toward lighter keyboards, as they facilitate faster riffing, but others may balk at that.

Another controversial design decision is the System-1's lack of traditional performance controllers. Instead of a pitch wheel or lever, Roland's new spring-loaded "scatter" knob—a concentric affair that looks and feels exactly like the jog/shuttle wheel on video editing systems—doubles on pitch-bend duties. Instead of a large modulation button or wheel, there's a chiclet-sized button. Keyboard action aside, these design decisions will definitely affect soloists looking to play lightning licks onstage. That said, other compact synths have made similar concessions, notably the Arturia MiniBrute's tiny wheels on its front panel and M-Audio's original O2 controller, which featured a similar keyboard action and small rubberized performance controls, yet remained a success throughout its run. Either way, it's safe to say that for many users, the only real considerations will be the System-1's sound and synthesis features.

Architecture

Hardware design aside, the System-1's approach to analog modeling is both innovative and extremely well thought out. Roland's new "plug-out" technology allows the System-1 to load detailed models of classic analog synths in addition to its default native synth model, which also has a sound of its own. The first synth out of the chute is, appropriately, the SH-101 (our review-within-a-review is on page 50) and if it's any indication of Roland's attention to detail, then the System-1 is going to remain viable and relevant for a long time to come.

The default synthesis engine is both comprehensive and polyphonic. This makes it extremely competitive when viewed in context of the current analog synth market, which is still largely focused on boutique monophonic synths. With its knob-per-function ergonomics and classic layout, the System-1 really *feels* like working with a proper analog unit, much like Roland's Gaia SH-01, which for its time was a decent emulation of subtractive synthesis. But in the case of the Aira, Roland's new Analog Circuit Behavior (ACB) technology makes it orders of magnitude more authentic. The fact that it *only* operates at 96kHz internally dispenses with aliasing and adds noticeable transparency, to boot.

The general architecture of the default synth mode is a dual-oscillator affair with an additional sub-oscillator and noise generator, followed by highpass and resonant lowpass filters. For modulation, there are dedicated envelopes for pitch, filter, and amplifier, and a single LFO. This is pretty standard for Roland's golden era of analog, notably the Jupiter-6 and Jupiter-8, as well as a nod to the ProMars. As part of my evaluation process, I took the System-1 to the popular Austin vintage synth boutique, Switched On Music, and even their staff was impressed with the overall character of the System-1, comparing it specifically to the Jupiters and Junos.

Oscillators. The System-1's oscillators feature both virtual analog and digital amenities that cover a massive range of sonic territory. In addition to the standard analog trinity of saw, pulse, and triangle options, there are multi-stacked "super" variants on all three, so they can also generate modern EDM sounds such as massive chords. As with other Roland synths, there's a Color knob for each waveform option. In the case of the classic pulse wave, this knob dials in the width of the cycle. For sawtooth and triangle, the effect is distinctly different while still feeling circuit-based. Sweeping the sawtooth wave results in a subtle phase-like effect, while cranking the triangle wave to maximum adds a narrow peak to the actual waveform, resulting in added high frequencies. On all of the "super" waves, the color knob increases the depth and detuning of the effect.

In addition to waveform selection, the oscillators also include some classic Roland flourishes, like cross-modulation (bi-directional FM for the nerds out there), ring modulation, and sync. Also found on the original Jupiters, the Cross-Mod knob is a fantastic way to add harshness and dissonance to the oscillators and in the System-1's model, the result has a warmth that I wasn't expecting. Ring mod performs as expected with wide oscillator tunings and triangle waves generating its trademark metallic effect.

That said, hard sync exposed a couple of unexpected wrinkles in the System-1's performance. For starters, oscillator 2's tune knob operates over a limited range, optimized for detuning applications. In order to access its coarse tuning mode—critical for classic sync effects as well as generating musical intervals—you have to hold down the sync and ring mod buttons, then set the interval via the Scatter knob. While this is easy enough to remember, it definitely disrupts the Zen flow of the front panel's other features. What's more, the pitch envelope affects both oscillators simultaneously, so sweeping the pitch of the second oscillator while synced to the first is impossible. Granted, this could be easily added in a future firmware update, so here's hoping Roland gives this further consideration.

With the features out of the way, let's discuss the *sound* of the oscillators in use. Specifically, do they really sound analog? The short answer is a confident "yes." I compared the Roland's standard oscillators to every other synth in my rig and on their own, they sounded every bit as crisp, present, and deep as the true analog units. The real test came when I used two oscillators simultaneously. On every one of my real analog synths, there's a

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miniscule amount of drift and phasing, even when both oscillators are precisely tuned. In the Roland, that same drift was fully present. Let's be candid here: Adding a tiny bit of random LFO to one or both oscillators will accomplish the same effect, but the fact that Roland's oscillators already sound fantastic individually makes this trick sound especially convincing, whatever its actual source.

Mixer. The System-1 mixer is worthy of its

SH-101 PLUG-OUT SYNTH

While the System 1's default synth model is impressive in itself, the biggest buzz is squarely on the SH-101 "plug-out" software. In a nutshell, when you buy a System-1, Roland also includes two additional pieces of software: an SH-101 plug-in that integrates directly with your DAW of choice, and an identical version that can be loaded into the System-1 hardware for portability, live use, and/or saving CPU cycles while working on a mix. While we've seen a few decent plug-in SH-101 emulations before, the idea of pushing a button and having a completely different synth in hardware is a very cool trick indeed.

Considering that the original SH-101 was Roland's first affordable monosynth, its architecture is really quite simple. A single VCO feeds a 24db-per-octave resonant lowpass filter followed by a basic VCA. For modulation, there was one ADSR envelope that could also be applied to the filter and an LFO that could be routed to pitch and cutoff simultaneously.

Despite the simplicity of that structure, the SH-101 was capable of a lot of tonal variety thanks to its mixer section, which allowed both sawtooth and variable-width pulse waves to be blended with a flexible sub-oscillator and noise generator. Also worth mentioning is the LFO's unique ability to modulate its destinations with noise, in addition to the usual triangle, square and sample-and-hold options.

Another hallmark of the SH-101's character was the aggressive nature of the lowpass circuits, which had a chunky, in-your-face quality that made it cut through a mix beautifully. As a result, the SH-101 was a staple in early new wave tracks before graduating to its position as one of the definitive synths of the acid-house and drum-and-bass eras. Regardless of whether you've ever actually used an SH-101, you'll immediately recognize its sound.

In Roland's new Aira era, it's obvious that the SH-101 plug-out will undergo extreme scrutiny, so Roland really took its time with the modeling of the unit and the results are truly remarkable. For the record, I have a mint SH-101 with only a whisper of crackle on some of the pots, so for my tests I put the two synths side-by-side and spent an afternoon creating identical sounds on each and recording the results, which you can hear at keyboardmag.com/october2014.

Even the original SH-101 panel functions are cleverly duplicated in the System-1. While the plug-in version includes graphics that are nearly identical to the original front panel, replicating the experience in hardware required some innovative tricks, notably turning off the knob LEDs for all inactive parameters so only the relevant options are lit. While this may confuse new users, fans of the original will immediately get it.

To duplicate the 101's single oscillator and mixable waves, the plug-out relies on the System -1 mixer for most of the VCO duties, with oscillator 1's controls governing octave and pulse width and nothing more, while oscillator 2's knobs go completely dark. In the mixer, oscillator 1's level controls the volume of the pulse/square wave and oscillator 2's knob determines the volume of the sawtooth. The sub-oscillator and noise parameters remain in place and the end result is a nifty duplication of the SH-101's approach to blending elements. Similarly, the filter's highpass knob goes dark, as the 101 didn't include that feature either. All in all, it's a clever trick that makes perfect sense in a modern context.

Now, about the sound. In my opinion, the AIRA model of the SH-101 is about 90 percent accurate, which is saying a lot for a soft synth going head-to-head with the original hardware. It's just as meaty, aggressive, and punchy as the analog version, with none of the headaches that come with caring for a vintage unit. What's more, the plug-out version has a few extra features that were absent from its forebear, like dual envelopes and a few extra waveforms on the LFO, not to mention the added tone knob, bit-crusher, delay and reverb. Purists can simply skip those options, of course.

After using the System-1's SH-101 emulation for a few weeks and enjoying its many conveniences, I began to wonder if I still needed my vintage SH-101—and that speaks volumes about its usefulness and authenticity. While I probably won't ditch the original immediately, I will definitely rely more heavily on the plug-out, simply because it integrates more tightly with my rig and is a tad more flexible thanks to the extra envelope and tone control. Any minor differences in sound are purely academic. In the context of a full mix, this emulation is functionally identical to a real SH-101, but with a lot less fuss. Color me amazed.

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own assessment. In addition to the mix of oscillators 1 and 2, it also includes octave and volume adjustment for the sub-oscillator, as well as level and color for the noise generator. The sub oscillator is especially nice, as it generates a triangle wave instead of the usual square and can be set either one or two octaves below oscillator 1. The noise generator sounded great in both pink and white modes and when played polyphonically, the noise got progressively louder for each additional note without changing pitch or adding phase. This is a very obscure test, to be sure, but it tells you a little bit about Roland's modeling decisions, as several classic polysynths relied on a single noise generator for all voices, resulting in the same overall noise level regardless of the number of voices playing.

As for the mixer itself, it's another area where Roland's ACB technology really shines, thanks to the way each element distorts when its level rises above 70 percent or so. For example, if you raise any of the oscillators' volumes beyond around two o'clock, they start to clip in an extremely organic manner, feeling a tad rounder in the mids. When viewed on my oscilloscope plug-in, the tops of the waveforms were nicely rounded, as opposed to simply chopped off. In the case of the noise generator, this introduced a slight tonal variation depending on whether either of the two oscillators was included in the mix, however quietly. There's more than simple summing going on here and the results were decidedly un-digital, taken as a whole.

Filter. The standard System-1 filter is a fine affair with what appears to be a touch of drift, like the oscillators. It's smooth and warm, and the resonance will self-oscillate with that trademark sine wave we all know and love. There's also a non-resonant highpass filter (another hallmark of Roland design), which is really nice for thinning out strings and pads.

Nonetheless, the filter feels a trifle undermodeled compared to the loving attention to detail in the oscillators and mixer. This is largely because the slopes don't quite behave in a perfectly analog manner. For example, when switching between from four-pole to two-pole mode on a proper analog synth—*e.g.*, any of the current Dave Smith products—there's an obvious boost of fizziness and a softening of the resonance. The differences between System-1 modes aren't as clearly defined. To be clear, there *are* subtle character changes, but in a proper analog circuit the filter pinches slightly when switching to four-pole mode, emphasizing the resonance dramatically and rolling off more highs due to the steeper slope. I'm guessing all of this is because the standard System-1 model is polyphonic and uses more CPU than the flawless filter re-creation in the SH-101 plug-out synth.

Even so, this filter is still a strong contender for best analog emulation in a digital hardware synth, with that distinctly buttery Roland vibe. There's even a hidden paraphonic feature that I discovered while kicking the tires: If you switch the portamento to legato mode, the amp and filter sections perform monophonically while maintaining four-voice polyphony. I grinned when I stumbled upon that.

Modulation. As for envelopes, the System-1 includes three, one each for filter, amp and pitch—and all of them include the snappy decay response that makes Roland's original analogs so coveted. While the pitch envelope is strictly an attack-decay affair, it's capable of being inverted for slightly different effects and its only caveat is the previously mentioned omission of single oscillator pitch modulation, which is necessary for getting the most out of the sync, ring mod, and cross-mod features.

The System-1 LFO has a timeless vibe as well, with the standard array of sine, triangle, sawtooth, square, and sample-and-hold options, as well as a "random" mode, which softens the sharp sample-and-hold transitions and is great for R2D2-like pitch whistles. It can be simultaneously routed to filter, amp, and pitch in discretely varying amounts and sports a fade time parameter for delayed vibrato. I've noticed a few reviewers complain that it wasn't capable of audio rate modulation, but with ring mod *and* cross-mod options on the oscillators, this seems like splitting hairs.

Effects. The System-1 also includes a small selection of onboard effects for adding further polish to your sounds. In the amplifier section, there's a bit-crusher and a Tone knob for fine-tuning the output before it hits the time-based effects. While the bit-crusher is pretty standard, the Tone knob delivered some surprising results. At first glance, it appears to be a simple bass/treble boost, but in practice it tilts the character of the entire analog model. Tilt it toward lows and the synth takes on a Moog-ish character. Subtly boost the highs and it gets a Korg-like shimmer. In practice, this knob gives the System-1 a good deal more tonal range than I originally expected and is absolutely wonderful.

The delay is a monaural effect with a bit of lowpass rolloff on the feedback loop to give it a slightly warmer, tape-like sound that I really liked. The reverb effect is governed by a single knob combining both decay and wet/dry balance. Interestingly, the reverb model pairs beautifully with the overall sound of the synth engine, coming off smooth and plate-like, almost like an old Alesis MIDIverb. There's something about its flavor that I really dug in context. It may not be flexible or detailed, but it sits nicely with the overall sound of this keyboard.

Arpeggiator. The arpeggiator section is where Roland inserted their AIRA-centric "scatter" functions. If you leave the scatter parameters alone, it works like a standard up, down, up/down affair, but twist the knob while the arpeggiator is active and it stutters and syncopates in some nicely musical ways. What's more, several scatter modes also affect additional parameters like filter cutoff, which takes its arpeggiations down decidedly modern pathways. The only catch was that the arpeggiator sometimes lost sync if I was locked to my DAW's tempo and got too crazy with the scatter knob while playing live.

Conclusions

I admit that I turned my electron microscope up to 11 while evaluating the Aira System-1. With all the hype surrounding its release, this felt necessary, especially considering that this synth will go head-to-head with a lot of real analog competition. My final verdict? I'm absolutely blown away by what Roland has accomplished here. Filter quibbles aside, the Aira System-1 sounds better than several of my favorite analog instruments—and coming from a purist, that's heresy. Every classic analog patch I threw at it sounded astonishingly legitimate. There were even a few vintage sounds that the Roland nailed where the others failed. So I moved some gear around and cleared space in my immediate work area, and the System-1 now lives by my side in the studio. I've even moved my trusty vintage SH-101 to a corner of the room. The only question remaining is how long it will actually stay there. After all, it's worth a pretty penny on eBay these days. ♫

Bottom Line

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- Audio deathmatch! Aira System-1 versus vintage Roland SH-101.
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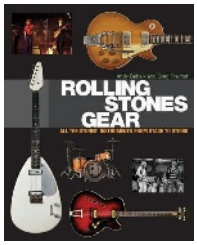

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KORG RK-100S

BY TOM BRISLIN

WITH THE KEYTAR COMEBACK IN FULL SWING, IT WAS ONLY A MATTER OF TIME before companies like Korg began to delve into their own back catalogs for inspiration. The new RK-100S combines a classic look and Korg's current analog-modeling synth technology in a compact, wearable unit. Let's take it for a spin.

Snap Judgment

PROS Sleek, elegant, classic design. Solidly built. Powerful synthesizer with effects and arpeggiator onboard. Second ribbon controller runs the length of the keyboard for alternate control possibilities.

CONS Keys aren't full-size. No aftertouch. Wood body looks great but adds weight.

Overview

The RK-100S has a striking design reminiscent of its namesake, the RK-100 (first released in 1984), and comes in a red, black, or white finish. The new model is more compact than the original, thanks in part to its 37-note "slim-key" keyboard (the same as the MS-20 Mini). The keys are velocity-sensitive, but there's no aftertouch. There are two ribbon controllers: a short one on the neck, and a long one that runs below the keyboard. A three-digit LED display and an up-down lever facilitate changing programs. You can also access banks of favorite patches by selecting one of the eight buttons above the right side of the keyboard. These buttons also light up when you play the keyboard (just for eye candy) and act as indicators/switches for arpeggiator steps.

Above the left side of the keyboard are four more backlit buttons: Tap (tap tempo for arpeggiator, LFO, or delay effects), Arp (arpeggiator on/off), Short Ribbon (changes neck ribbon function between pitch-bend and modulation), and a Shift button to yield a few more functions when used in conjunction with other buttons. The neck has octave-shift buttons, plus two buttons for assigning the function of the long ribbon (either pitch or filter control). Connections are found on the right side of the instrument, except for volume dial and audio output, which are on the front panel. The 1/4" audio jack carries a stereo signal suitable for headphones. It will also accept a monaural 1/4" cable (outputting the left channel only) or stereo Y-cable. The RK-100S is powered by six AA batteries (included), or by an optional AC adapter.

Built-In Synth

The field of keytars that generate their own sound (as opposed to being strictly MIDI controllers) is a small one. Among these, the RK-100S is the only one we know of that employs analog modeling synthesis. Under the hood is a full-featured synth engine derived from the MicroKorg XL+.

On the right side you'll find a USB port, jack for AC adapter (sold separately), power button, 1/8" stereo audio input with line/mic gain switch, and MIDI out.

Referred to as MMT (Multi-Modeling Technology), the engine models classic analog and digital waveforms, and includes a vocoder.

Each program contains up to two "timbres," which can be layered or split into different key zones (or different MIDI channels in Multi mode). A program with a single timbre has eight-voice polyphony, which is halved when the vocoder or a second timbre is employed. Each timbre has two oscillators plus a sub-oscillator. The available waveforms include saw, pulse, triangle, and sine waves; oscillator 1 can also generate formant, noise, and a selection of sampled instruments and single-cycle waveforms reminiscent of Korg's DW-6000 and DW-8000 synths. There are multiple modulation routings, and a "virtual patch" matrix of five different modulation source/destination pairs. Each timbre also features a two-band EQ. Each program has two master effects, with 14 choices including reverb, delay, compressor, tape echo, ring modulator, and more.

In Performance

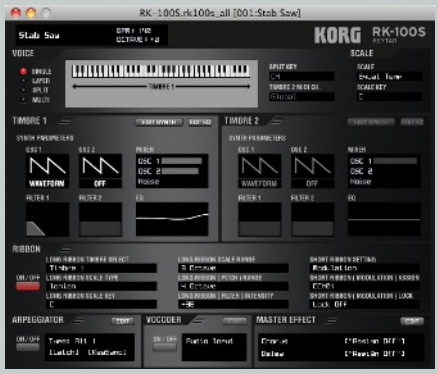
When I first donned the RK-100S, it was noticeably heavier than expected. Despite its compact form, it's fairly dense at seven and a half pounds. One might not notice the wooden construction, because all colors of the RK-100S have glossy painted finishes. The slim-key action feels easy, as you'd expect, though players used to full-size keys may have to get accustomed to the approximate 75 percent scale. The ribbon controllers are responsive and fun, and each can serve multiple functions. The short ribbon on the neck can be assigned to either pitch-bend or modulation.

When the ribbon is assigned to pitch-bend, you slide up (right) or down (left) to bend pitch accordingly; releasing the ribbon snaps the sound back to its original pitch. When used as a modulation controller, you slide up from the leftmost side of the ribbon to increase modulation. Curiously, the short ribbon function switch is found on the keyboard panel, making it inconvenient to change rapidly between pitch bend and modulation control. (You must either remove your left hand from the neck, or take your right hand off the keys and press the button.) There are, however, neck controls for the long ribbon functions. It would have been great to have the short ribbon control button on the neck with them.

The long ribbon has a couple of useful implementations. In one, it's a playing surface—just slide your finger across the long ribbon to play a scale with programmable note and range values for each preset. In another, it offers a unique take on pitch-bend. While playing a key with the right hand, you can press one of the two Long Ribbon buttons on the neck (pitch or filter). This will sustain the note you played, freeing the right hand to use the long ribbon for an upward wide-range pitch bend or filter modulation.

Conclusions

The RK-100S is a serious looker, and a match made in heaven with its retro-friendly synth engine. It's hard to put this instrument down, or, rather, take it off. It's a fitting tribute to the original RK-100 while packing enough forward-looking inspiration, expressive possibilities, and cool factor to spare. ♫



RK-100S EDITOR

You don't edit sounds from the RK-100S front panel, but from the RK-100S Sound Editor Software, which is a free download. The main screen features a library of the 200 presets, plus a list of presets assigned to the eight Favorites buttons on the RK-100S. The preset list reads like a spreadsheet, the columns of which aren't labeled; click on the Column button to see what the columns are really telling you. Click the Edit button to display the program's overall parameters, including an Edit Synth button to reveal further parameters for each timbre, with a soft-synth type of graphical layout. This window reveals what a capable and versatile synth the RK-100S is.

Bottom Line

Korg's new keytar has real stage presence, with a sexy retro look and real sonic muscle.

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First look at the Korg RK-100S.

keyboardmag.com/october2014

ALESIS Vortex Wireless

Keyboard K KEYBUY AWARD

BY TOM BRISLIN

THE ORIGINAL ALESIS VORTEX WAS A BOON TO THOSE WHO WANTED TO experience the joy of the keytar at a low price. The new Vortex Wireless takes that same feature-packed controller and adds wireless MIDI-over-USB transmission. That's more than a novelty, as having any sort of tether onstage can really be an obstacle to full keytar enjoyment and unrestrained performance. Let's take a look at this truly remote controller keyboard.

Snap Judgment

PROS Full-size keys with aftertouch. Tight wireless operation. Ample controls including accelerometer, ribbon, wheel, slider, and knobs. Cool assignable pads. Lightweight and affordable. Includes bundled synth and DAW software.

CONS With only a three-digit LED, programming without the included software editor is less than user-friendly.

Form and Function

Aside from the aforementioned addition of wireless operation, the Vortex gets a new look with a black plastic casing (the original vortex, reviewed in June 2013, came in white). Its 37-note synth-action keyboard transmits both velocity and aftertouch. As synth keyboard actions go, there's a good deal of resistance. In fact, the keys spring up quickly enough to produce an audible clack upon release (though that's not likely to be any sort of practical issue in live performance).

There's no shortage of controls on the Vortex Wireless. The neck features a multi-function ribbon, pitch-bend wheel, assignable slider, and buttons to control sustain, ribbon modes, octave up/down, and keyboard zones. The main panel features a three-digit LED screen, three assignable knobs, and eight assignable trigger pads. The trigger pads vary in size and shape, and serve multiple functions. On the underside you'll find a battery compartment (the Vortex Wireless uses four AA batteries) and a storage compartment for cables. The Vortex Wireless can also be powered by an AC adapter (sold separately) or the USB bus—but of course, the idea is to go completely wireless. Overall, the look leans toward the quirky and angular.

Let's also not forget the accelerometer, which allows you to use the motion of the whole instrument to affect the sound. This feature, unique to the Vortex Wireless and its predecessor, suits the keytar well. As you tilt the neck up or down, the accelerometer sends MIDI controller data along a user-programmable CC, with modulation as the default setting. In the horizontal playing position, the control value is 0, which you can sweep up to 127 by pointing the neck fully upward. You can customize the minimum and maximum values transmitted as well as the physical range in which it senses movement. The latter is ideal for

those who prefer to keep the keytar at an angle while playing. Similarly, the control knobs, ribbon controller, and slider can be scaled as well. It's this type of flexibility that really facilitates creating a personal connection to the instrument. This was especially evident when it came to the pitch-bend wheel. When horizontal, the wheel bends pitch upward when moved to the left, and downward when moved to the right. The logic here is that it follows the pitch direction of the keyboard (left is down, right is up). However, when playing a conventional synth with a pitch wheel, you move the thumb away from your body to bend pitch upward, and towards it to bend down. To approximate the same technique on the Vortex, you need to reverse the wheel's response. Happily, there are parameters to make that very change and save it as part of a program. If you prefer to use another finger to work the wheel, the default setting works nicely as well. If you get deep into customizing your controllers, keep the user manual handy, as the three-character LED isn't the most intuitive display for editing.

On the right side you'll find a power selector switch, USB 2.0 port, MIDI out, a sustain pedal input, and jack for optional power adapter (sold separately).

The included Vyzex Vortex editor provides comprehensive control of key zones, pads, and controller assignments. Also included are a custom soft synth from Sonivox, Ableton Live Lite, and AIR's Ignite music creation software.

Wireless Operation

In addition to conventional MIDI and USB operation, the Vortex Wireless implements wireless USB. This is achieved by connecting the USB wireless receiver, which is about the size of a thumb drive. The receiver can be connected to any computer or instrument that's equipped with a rectangular USB type A connector, such as the Muse Receptor Qu4ttro, which I reviewed last month. If you're looking to control a hardware MIDI device wirelessly, you'll need to incorporate a computer and MIDI to route the wireless signal to it. [*Since the Vortex's USB requires no drivers, you could also use an iConnect MIDI 4+ interface for this application without a computer, as it has a type A port from which it can route incoming MIDI to its five-pin outputs. —Ed.*] The wireless operation is fast and responsive, with no noticeable latency or other difference in performance when compared to USB or MIDI wired connections.

Alesis claims a wireless range of up to 100 feet. In practice, I roamed about 45 feet in my home studio and in various venues before physically running out of room, with no problems. I didn't have the opportunity to test for interference in an RF-dense context, such as a band that uses mainly wireless mics and in-ear monitors.

Bundled Software

Even if you don't possess a single MIDI instrument or software synth, you can start making music right away with the Vortex Wireless' included software. In the box you'll find a DVD copy of Ableton Live Lite 8, and when you register the software on the Ableton site, you can upgrade for free to Live Lite 9. This package gives you a basic DAW and software synth tones right off the bat.

Also included is Sonivox's Vortex-I, a software synth specially designed for the Vortex and Vortex Wireless. This a basic synth with editable five-stage envelopes for amp and filter, LFOs for amp, filter, and pitch, lowpass filter with resonance, and up to four simultaneous effects (reverb, EQ, chorus, and delay). There's also a download of the Ignite music creation software by Air Music, and Vyzex Vortex, a software editor/librarian. The wireless connection communicates in both directions, so you can use Vyzex to make changes to the Vortex Wireless settings without the need to connect a cable.

Conclusions

If you're a fan of the keytar, it's easy to get excited about what the Vortex Wireless offers. It's got the visuals, from its funky design and non-uniform drum pads. The visuals lead to expression via the accelerometer control, and the neck is outfitted with a Swiss Army knife-like complement of controllers to keep the left hand more than occupied during performance. The right hand will have a field day with the aftertouch-sensing keyboard, solid-feeling assignable knobs, and the trigger pads. Most importantly, between the wireless USB and battery operation, it really does cut the cord. Some users might bemoan the lack of an internal synth, but then you'd need a cable or wireless *audio* transmission, the latter of which would add significant cost whether it was built-in or an external belt pack. It's surprising that a keytar controller this full-featured goes for a couple hundred bucks, but should come as no surprise that it merits a Key Buy award. ♫

Bottom Line

The best bang for buck in a keytar MIDI controller, hands down.

$299 list | $199 street
alesis.com

First look at the Alesis Vortex Wireless.

keyboardmag.com/october2014

MOOG MUSIC
Theremini

Keyboard K KEYBUY AWARD

BY STEPHEN FORTNER

NEXT TIME YOU'RE HATING ON HIPSTERS, REALIZE THAT WE CAN THANK THEIR love of retro-futurism—at least in part—for Leon Theremin's 1929 invention becoming the best-known "weird" instrument of our time. Of course, you don't have to wear mustache wax to be captivated by its sci-fi siren song, not to mention the visual aspect of performing without actually touching the thing. Like many curious keyboardists, though, I play theremin cringingly badly and have never been able to justify the time investment in getting good. It's that sort of barrier to entry that Moog Music aims to lower with the $300 Theremini. After living with one for a month, I declare the barrier lowered—a lot.

Concept

A theremin works by sensing the proximity of your hands to two antennae: a horizontal one for volume and a vertical one for pitch. (The pitch antenna is on the right, but to use your left hand for pitch, you can stand on the other side of the unit.) Closer to the pitch antenna equals higher; closer to the volume antenna equals softer. Technically, your pitch hand is affecting the capacitance of an analog oscillator, and the circuit is very sensitive. Watch videos of great Theremin players such as Clara Rockmore, Carolina Eyck, and Dorit Chrysler, and you'll see both the subtlety of their pitch hand movements and how actively they work the volume antenna so as to voice only the desired pitches.

It's this sensitivity combined with the lack of any tactile feedback that gives the theremin its reputation for being difficult to play. The Theremini still uses an analog oscillator for pitch control, but that

Snap Judgment

PROS Pitch correction and visual note feedback make it fun to learn to play accurately. Goes beyond classic Theremin sounds to cover a wide range of synth tones. Manual includes helpful playing tutorials. Thorough and useful array of scales. Deep synth engine is fully editable.

CONS At this time, you can't save edits to presets from the front panel—only via MIDI or the software editor.

oscillator's output is then converted to control a digital sound engine derived from the Animoog iOS soft synth—and where there's digital information, it can be quantized. The Pitch Correction knob varies this quantization to skew the machine's hand-to-pitch judgment call towards one of 21 selectable scales (including chromatic, all the modes, major and minor blues, major and minor pentatonic, whole-tone, a few world scales, and more) for which you can also choose the root note. At maximum correction, moving your pitch hand plays only the notes in the active scale, with no portamento. At minimum, the pitch is continuously variable, making the scale irrelevant. Intermediate settings "rubber-band" your pitch to the target note, doing so more quickly as you increase the pitch correction.

Supplementing this is an onscreen pointer that shows how close you are to the target note, which the Theremini defines as whatever note you're already closest to on the selected scale. I can't over-emphasize how much paying close attention to this display helped my technique, eventually letting me progressively back off on the pitch correction as I practiced the illustrated exercises in the downloadable PDF manual.

On power-up, you're prompted to run a calibration routine that establishes near and far extremes for each hand. You should definitely run it after moving the Theremini (especially if it's to a gig) to ensure that muscle memory acquired during practice still translates as expected.

Design and Controls

The glossy white Theremini looks like the love child of a photon torpedo and EVE from the Pixar movie *WALL-E*. The pitch antenna is a removable aluminum rod, which snaps into a groove on the underbelly for transportation. The volume antenna is a crisp parabola that's affixed to the left side solidly enough to double as a carrying handle. I noticed that if the external power brick was too close it affected the pitch (in a way that the wooden hutch on my desk didn't), but the cord is plenty long enough for this not to be an issue.

For practicing, the built-in speaker is surprisingly full-range for its size. Only it and the 1/8" headphone jack are controlled by the main volume knob; for the main stereo outs, you set a ceiling volume in the Setup menu and after that, volume is what your left hand is for.

Speaking of the Setup menu, from there you can also change global settings such as lowest and highest pitches, overall tuning, which MIDI CC messages each antenna sends externally (yes, they do that), and which antenna (and whether the internal pitch correction) affects the analog CV out. Synth geeks will surely find applications here beyond the intended "my first Theremin" usage. For example, via MIDI you could use hand (or waxed mustache) gestures to add modulation or sweep macros of parameters on a connected soft synth. Setup menu settings are retained with the power off.

The rear panel provides stereo line outs, a CV output should you want to control other analog gear with the Theremini, a ground screw (using it can increase pitch stability), and a mini USB-B connector for MIDI communication.

Sounds and Synth Engine

With what's very close to a monophonic Animoog (reviewed May 2012) under the hood, the Theremini's 32 presets go far beyond classic "singing" theremin leads—though of course it does those very well. "All Your Bass," for example, works especially well for dubstep-style pitch swoops. In addition to the expected virtual analog waves and resonant filter (with six selectable types), the internal synth has Animoog's wavetable scanning for patches with internal timbral motion.

In fact, the synth engine is fully editable in two ways, neither of which involves the front panel. Every synth parameter is accessible via a MIDI CC (there's a handy chart in the PDF manual), and sending any value on CC 119 is the "save button" that writes your edits to the current preset. Connecting both the Theremini and a Novation Nocturn to my Mac via USB, I quickly pressed the latter into service as a control panel. However, most users will probably prefer the upcoming software editor, which at press time was in beta. I'm fine with needing MIDI or an editor to tweak deeper parameters on this type of instrument, but I did find it odd that even things you *can* adjust from the front panel—scale, root, and delay type/amount—can't be *saved* from there. You can save them to a preset using the other methods, and Moog Music says a front-panel save function is coming in a firmware update.

In contrast to its robust CC implementation, the Theremini doesn't currently deal in MIDI *notes*, either incoming or outgoing. Presumably this is because they'd be hard to reconcile with the continuous nature of its pitch-parsing mojo. So no, it won't double as a desktop synth you can play from a keyboard, but seriously, just put Animoog on your iPad for that. (I asked Moog Music about MIDI notes via email. They said that near-future firmware updates would provide "great feature and functionality improvements" but couldn't divulge anything further at the time.)

Conclusions

There's no question that the Theremini is the ideal first theremin if you're looking for one and sonically flexible enough to be the last one you'll ever need. More importantly, though, it's seductive to musicians who might never otherwise consider a theremin. Sure, you can start out with obvious guilty-pleasure uses like setting it to a root-fifth scale with the pitch correction cranked to add some hand-waving showmanship to your gig. However, that becomes a gateway drug to eventually mastering melodies, with as much or as little training-wheels factor as you need along the way. The theremin used to be esoteric, intimidating, and cool. Now it's approachable, friendly, and cool. See what Moog just did there? ♫

Bottom Line

The idea of a "theremin for everyone" was a contradiction in terms—until now.

$319 list | $299 street
moogmusic.com

PRESONUS Sceptre S6

BY STEPHEN FORTNER

The rear panel is a simple affair, with pushbuttons to select three options each for wall proximity, high cut/boost, and low cut for use with a subwoofer.

YOU MAY NOTICE THAT KEYBOARD DOESN'T OFTEN REVIEW STUDIO MONITORS. FOR ONE THING, THE RECORDING magazines have them pretty well covered. (Check out the roundup in the October issue of *Electronic Musician*.) For another, unless your monitors are magically good or just plain awful, they're just one factor in what you hear and how well your mixes translate—your ears and your room are the other elements of that organic whole. But monitors are the only part of a studio setup you actually *hear*, so unless you play acoustic instruments exclusively, you need a good pair to get work done. So when something hits a price-performance sweet spot we think makes it a winner for keyboard players' home studios, we'll take a closer look. That's PreSonus' new Sceptre Line in a nutshell.

I tested a pair of Sceptre S6 along with a Temblor T10 subwoofer, and also logged some brief listening time on the larger Sceptre S8. The Sceptres are coaxial, meaning that the tweeter is mounted right in front of the woofer such that a straight line would pass through the centers of both. In theory, the advantage is that since all the frequencies are coming from the same point, they're all time-correct when they arrive at your ears. In practice, this design is hard to get right. The woofer's wave can distort the tweeter's, and some the woofer's sound is bound to reflect off the back of the tweeter horn.

That said, PreSonus did get it right, employing internal DSP to cancel out any negative effects of coaxial design. So how do they sound? The first thing I noticed was that they have a wide sweet spot. With them placed at the corners of my studio (about 15 by 25 feet) I found I could walk all over the room and hear basically the same stereo soundstage of a dense acid-jazz mix I'd been working on in Logic Pro. To test this further, I purposely made the panning on some stereo tracks (such as Rhodes, drum overheads, and the backing vocal group) narrower than I wanted. No problem—I could wander and still hear the difference between say, a nine/three o'clock pan and a ten/two.

One of the only other makes that does this for me is my reference pair of Adam S2A, which is why I paid nearly $3,000 for them in the late '90s. As to accuracy and evenness of frequency response, the Sceptres surprisingly bat in the same league.

Snap Judgment

PROS Coaxial design done right. Wide sweet spot for stereo imaging. Accuracy and sound quality on par with monitors costing much more.

CONS For mixing bassy music, you'll want to step up to the S8 model or add a subwoofer.

Bottom Line

Seriously great monitors.

$839.95 list | $599.95 street each
presonus.com

The two brands present *detail* a bit differently: The "electron microscope" factor Adam has in the high-mids to extreme treble, PreSonus has more squarely in the midrange band. Yet neither come off as hyped in any given range, and neither tire out my ears after spending all day mixing, working on audio examples for articles in the magazine, and listening to music by artists we plan to interview.

The one thing the Sceptre S6 could have a bit more of is bass. For making mixing decisions on bass-forward music such as funk or EDM, I was glad I also had the Temblor subwoofer. Though I only listened to already-mixed material on the larger S8s, I got the sense that though the sub is nice to have, I wouldn't *need* it in conjunction with them.

The Sceptres' value is outstanding, and I predict they might get as popular in project studios as the original Mackie HR824 (at one price point) and Adam S3A (at another) did when they first came out. I won't say that everyone will like them—there are a ton of choices out there and everyone's ears hear differently. But at the end of the day, what we have here is a $1,400-ish (less) pair of speakers that acts like it's a $3,000-ish pair. In fact, that's the price I'd guess if someone covered up the logo and with it, PreSonus' reputation for making gear at approachable prices. Nicely done!

TEMBLOR T10 SUBWOOFER

The Temblor T10 ($499.95 list/$399.95 street) pumps out tight, clean, and *loud* bass while being compact enough not to be a knee-buster under small home studio desks. Around back are XLR, 1/4", and RCA stereo inputs, stereo XLR and 1/4" line-level outs for routing crossed-over audio to your main monitors, and a monaural sub out. In my particular room, I got the smoothest blend by setting the crossover frequency to 80Hz but the S6 low cut filters to 60Hz. Unless I need the surround routing of my Genelec 7060A, the T10 is likely to remain my everyday sub.

AKAI PROFESSIONAL iMPC Pro

BY FRANCIS PRÈVE

LAST YEAR, WE REVIEWED AKAI'S IMPC, A FIVE-DOLLAR APP THAT DID A great job capturing the feel and flavor of their iconic MPC series in iPad format. While we were duly impressed with the overall product and its performance potential, the overall experience left us wanting more in several areas. Fortunately for everyone, Akai listened closely to its users and last summer, with the help of their software collaborator Retronyms, they unleashed the iMPC Pro. It not only addresses the composing and editing issues of its little brother, but adds a slew of new functions that make iMPC Pro a true mobile music production player.

For starters, you can now create full songs and even perform them on the fly, thanks to iMPC Pro's ability to assign patterns to the four banks of 16 pads. Arranging patterns into a song is a straightforward process that consists of dragging them into a vertical playlist, not unlike Korg's Gadget app.

As for editing your patterns, the timeline tool will be immediately approachable by anyone familiar with Live's drum editing functions. This is a very good thing, since it means that working with Akai's timeline editor is an absolute breeze, with 15 simultaneous drums visible at all times and a pinch-resizable view that lets you zero in on individual measures for whipping up detailed fills. Frankly, iMPC Pro's approach to coding grooves is right up there with most DAWs and, to be candid, more flexible than that of a *hardware* MPC.

iMPC Pro's new performance features are fairly extensive. In addition to the classic MPC tools like slider control over filter, tuning, decay, and velocity/volume, there's a big X/Y area on the main screen that lets you process the entire mix with everything from classic filter effects to exotic stuttering tools akin to iZotope's Stutter Edit. Hitting this area with two fingers engages a nifty tape-stop effect that will be a hit on the trap and hip-hop scenes. For those who really want to dig into the performance side, the "3D Perform" mode lets you assign the slider effects to the iPad's accelerometer, so you can tilt it to manipulate the various parameters.

The mixer functions have been dramatically improved as well. The stereo master bus now includes compression and gain that give the final output a punchy, polished sound. There's also a new feature, humorously named "Turbo Duck," specifically for making sidechain effects a painless process for both newcomers and pros. In addition to the master effects, there are three internal send effects—reverb, delay and chorus/flanging—which all sound a lot better than the usual me-too fare often found on iOS synths and groove apps. There's also a fourth send available specifically for InterApp-friendly software, which is a nice touch.

Speaking of InterApp compatibility, iMPC Pro can sample audio from other compatible apps. You can also grab audio from the iPad's mic or line input, or use a virtual turntable to grab tracks from your iTunes collection and play or *scratch* them straight into the app. From there, you can visually edit the samples or even slice them REX-style and assign slices to the pads.

iMPC Pro has come a long way since the original iMPC app, and frankly it was worth the wait. I had a blast taking it to coffee shops and dentist appointments and am really happy that it's now in my iOS toolkit. If you liked the original, you definitely need to upgrade.

Snap Judgment

PROS Full-featured implementation of original MPC. Intuitive editing and song arranging. Tons of real-time performance effects, including accelerometer-enhanced modes. Integrated sidechain ducking. Excellent mixing. InterApp compatibility.

CONS Not WIST compatible.

Bottom Line

The definitive mobile MPC emulation. In some ways it's better than the hardware.

$19.99
akaipro.com

String Studio VS-2 - String Modeling Synthesizer

Applied Acoustics Systems

Available Now

String Studio VS-2 is a string modeling synthesizer plug-in that swaps the traditional oscillator sound source for a string.

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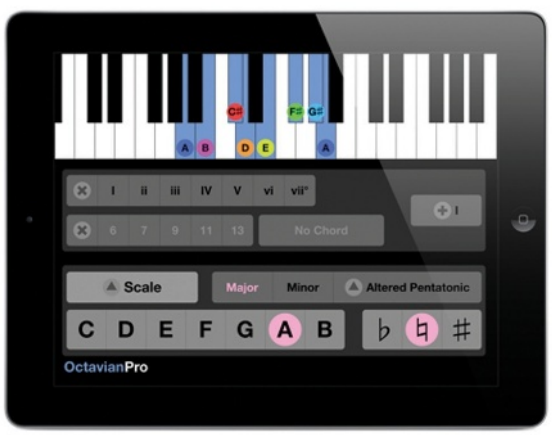

Octavian Pro

Bitnotic

Available on the iTunes App Store

Definitive music theory resource for students, teachers, songwriters, and musicians. Features 500+ scales, 50+ chords, progression sequencer, dictionary, and more. Keyboard Magazine said of Octavian 1.1.0 (Jan 2010): "It's a cheat sheet no keyboardist should leave home without." Compatible with iPad, iPhone, and iPod touch.

SRP: $2.99

www.bitnotic.com
info@bitnotic.com

Blue II

Rob Papen

Available Now

BLUE II takes the XY-pad features from its popular virtual sibling BLADE, and combines FM and subtractive synthesis for a cutting-edge additive synthesis powerhouse. Using an intuitive, simple interface - perfect for time-based sound movements and vector pad-type sounds, BLUE II takes wave shaping synthesis into a highly creative mix of "crossfusion synthesis".

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MSRP: $179.00

BLUE --> BLUE-II upgrade: $49
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www.robpapen.com

HAMMOND Leslie Studio 12

BY TONY ORANT

WHEN YOU HEAR THE SOUND OF THE HAMMOND ORGAN, YOU'RE ALMOST always hearing the sound of the rotating Leslie speaker as well. That lush chorale that washes over you at slow speed, the complex vibrato-meets-tremolo at fast speed, the transition between those extremes . . . it's a very expressive tool in the right hands. There's no question that simulators—both built-in and outboard—have gotten excellent in recent years. But when I stumble on a band using a real Leslie I inevitably think, "That sounds so awesome!" So, what do you do when you want that real moving air, but can't deal with the issues a full-size Leslie 122 or 147 might present? You do the Leslie Studio 12.

Features

The Leslie Studio 12 features dual rotors, a built-in preamp stage, and 1/4" inputs. It also has some features you won't find on other Leslies. First, the motors are almost maintenance free—no more oiling. Second, the Studio 12 has two channels: clean and overdrive, selectable via an optional footswitch or on the rear panel. Third, in brake mode, the treble and bass rotors always stop with their open areas in the front. This means you can mike the rotors from the front and be assured of consistent sound. Fourth, using the optional V20-RT pedal, you can continuously vary the Leslie speed between fast and slow extremes.

In Use

I took the Studio 12 to a couple of gigs during the review process. The first gig was as a special guest on another band's festival appearance. They happened to be doing a tribute set of Pink Floyd's album *Animals*, and their regular keyboardist was splitting duties between Hammond organ and electric guitar. I was hired to add all the other sounds, plus play organ when he couldn't. I could've used his B-3, but decided it would be a fantastic test to run my Hammond SK1-73 through the Leslie Studio 12, and thus compare the two rigs. I used the included two-button footswitch for rotor speed. As these songs don't use much grind, I stayed on the clean channel. This was a crowded festival stage, and the only place to put the Studio 12 was right between the B-3's Leslie 147 and the other keyboardist's Fender guitar amp.

I miked it from the front, and it sounded fantastic. Though I'd played with the three-band EQ knobs, I defaulted back to their noon position. There was no problem matching the onstage volume of the band (though I did have the thing turned up a bit) and the front-of-house engineer told me he was very surprised at how little EQ he needed to apply to put the Studio 12 in the same space as the 147. I needed no additional Leslie in my monitor to hear myself onstage, even against two electric guitars, bass, drums, and an acoustic guitar. The engineer also noted that the motors made no noise, which made his job easier.

Snap Judgment

PROS Real dual-rotor, dual-speed Leslie. Sounds fantastic. Solves many problems traditional Leslies face. Holds its own in loud, guitar-heavy bands. Continuously variable speed via optional pedal.

CONS Though 1/4" inputs provide the most flexibility, some organists might miss a dedicated multi-pin Leslie cable input (though Hammond sells various adapters).

The next night, I brought the Studio 12 to my '80s band gig, which was also outdoors. The instrument lineup is the same, but both guitarists use Marshall half-stacks, so the volume stakes were a bit higher. I still stayed on the clean channel, opting to dial in a little hair on my SK1 (since I didn't have the optional channel switch). Both guitarists' eyes lit up when I hit that first chord. They dug it every bit as much as I did, and were drilling me for information afterwards. When they found out this actually works for electric guitar as well (with no additional preamping or amp stage needed), their interest intensified. Everyone loves Stevie Ray Vaughan's Leslified guitar on "Couldn't Stand the Weather," but when I pointed out that the Leslie was a key component of Peter Frampton's sound, both guitarists had a "Eureka" moment. I'll probably be seeing another Studio 12, or its guitar-oriented counterpart the G37, onstage soon.

In using real Leslies almost my entire gigging career, what usually would happen is, I'd find a happy medium between clean and dirty to start with, and as the night wore on and the tubes got hotter, the Leslie would get more overdriven—and quieter. That's not the case here. The Studio 12 can stay loud almost all night long thanks to the tube preamp but solid-state power section. More importantly, one button push, and you have your grind. Another, and your sound cleans right back up.

The Studio 12 is highly portable and car-friendly. Standing upright (as the manual recommends for transport), it fit in my Toyota Highlander along with three keyboards, an eight-space rack, two powered monitors, two cable bags, two pedalboard cases, two keyboard stands, and a hand truck. One of my old "short boy" Leslies would have eaten up most of the cargo area by itself. The handles are well placed for transport, and though the weight is a non-trivial 85 pounds (on par with many bass combo amps), I had no problem lifting it into my car. Finally, the coated exterior (not Tolex) is super durable and makes cleaning a breeze.

Conclusions

Sonically, the Leslie Studio 12 is an attention getter, and while I won't argue that using a simulation is easier, I'd be lying if I didn't admit that from the first note, I had a grin on my face as the moving air propelled me to dig in. I don't play bass pedals, so I can't testify that the low rotor's 12" woofer will be the best choice for a organ trio that has no bassist, but for the typical gigging keyboardist, this Leslie is as practical as it is inspirational. Beware: You'll be sorely tempted to leave your simulator at home for late-night practice sessions, and keep the Studio 12 in the gig rig! ♫

On the rear panel, you'll find high- and low-impedance 1/4" inputs, gain controls for the clean and overdrive channels, three-band EQ, and knobs that fine-tune the minimum and maximum speeds for both rotors together.

Bottom Line

Bar none, this is best sounding mini-Leslie we've ever tested.

$1,795 list | $1,495 street
hammondorganco.com

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Buying or selling instruments through our Classified Ads offers you convenience, a big marketplace, and a wide range of instruments and prices. However, buying mail-order does have its drawbacks, too. Keyboard Magazine suggests the following guidelines to help the buyer and the seller in these transactions: 1) Get a written description of the instrument, which should include the serial number. 2) Get front and back photos of the instrument. 3) Get a written purchase agreement, with a 24-hour approval clause allowing the buyer to return the instrument for a full refund if it does not meet reasonable expectations.

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PAMELA FONG

6 THINGS I'VE LEARNED ABOUT Jazz Composition

BY VINCE MENDOZA

MOST OF THE INFLUENTIAL COMPOSERS IN JAZZ HISTORY—SUCH AS JELLY Roll Morton, Thelonious Monk, and Duke Ellington—approached the craft of their music from the perspective of the *player*. In addition to the written note, the interaction and/or invention on the part of the players in an ensemble is essential to the success of a jazz composition. I keep this in mind when I'm writing my own music. I carry this philosophy into all musical styles, improvisational or not, as the connection to the player in an ensemble is essential for the successful communication of ideas. Here are six things I've learned about jazz composition.

1. Write Singable Melodies

Players can only be as expressive as the paths that are given to them. Great melodies will inspire expression and improvisation from the player, and will inspire you in turn to write great counterpoint. Be able to *sing* the melodies you write so you can feel how instrumental players might interpret them. A great way to practice melodic construction is by writing simple shapes that tell a story right from the very first phrase.

2. Intervals and Rhythm

Igor Stravinsky said that he was most concerned with intervals and rhythm. Rhythm is also the heart and soul of jazz. Create a groove that you like and improvise melodic ideas based on it, working out the details later. Also, try varying the intervals in your melodic ideas, keeping a close eye on the ones that might make your music more unique in your approach to writing. Experiment—you might prefer to use mostly whole-steps, or perhaps half-steps or fourths, or a combination of all of them to make your own unique sound.

3. Use Transitions

How do you make a transition from one phrase to another, or from one section of a song to another? Or even from one song to another? Transitions give us a feeling of continuity in our performances. They are important on many levels. Without them, the music makes no sense. The opening phrase of your song should lead me to the next one. A good transition inside of a song can be as simple as a melody or bass motion that gets you from one key area to another.

4. Manage Your Energy and Form

A great composition or arrangement will manage the energy of the performer from the beginning of a piece to the end. Also, the way you decide to put your *forms* together can make a difference in the energy of the piece. Does the song shut down after a minute to make room for a "free" solo? Is the entire ensemble playing at full force for two minutes? Where will you go from there? Do we really need to hear the entire melody again after three solos? The answer to these questions (and others), are entirely yours and will be part of your unique approach to song construction.

5. Listen

We don't create art in a bubble, and we can't deny the humanity in music, as we rely on the inspiration of the community to drive our creativity. As we get more insular in our daily activities, it's important to keep track of the music and musicians that inspire us, and to keep looking and listening for music that will push us in new directions. For example, I pause to think about what Debussy would have been writing had he not heard the gamelan.

6. Make It Feel Good

I tell my students about this with regard to drum and percussion parts, but it goes for everything I write. If a part sits well on an instrument, the player will *lean into* the part and make it sing. The best way to learn this skill is to listen to players of many different styles. Keyboard players need to think not only about what notes to play in the chord, but how they fit in to the rhythm section. Think about the instrumentalist who'll be playing your music, and the resulting experience will bring people together. *That* is creative music at its best!

Vince Mendoza has been at the forefront of jazz and contemporary music as a composer, conductor, and recording artist for the past 20 years, garnering six Grammy awards and 28 nominations. Mendoza's new album *Nights on Earth* features his own compositions arranged for small and large ensembles. Find out more at vincemendoza.net.

Video: Vince Mendoza performs "Otoño" with the Metropole Orchestra.

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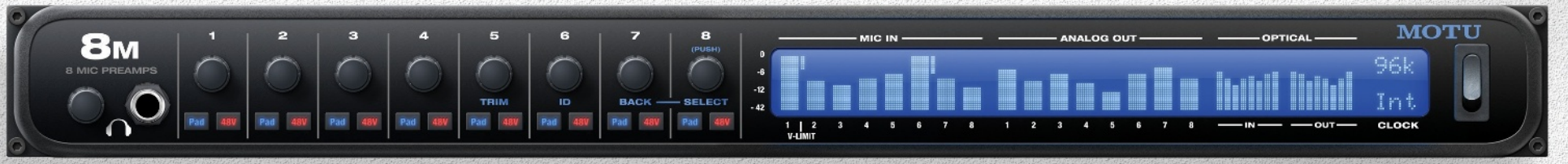

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